THE CHOICE OF THE MODEL IN INVENTORY CONTROL AND THE COST OF SOPHISTICATION

VOLUME 3

CONTENTS

CHAPTER 1

DETAILED GUIDE TO THE RESULTS ON EACH PAGE

DIFFERENT VERSIONS OF MODEL (Q,R) : CONSTANT STOCKOUT COST

DEMAND ,D = 10 -------10^6

ORDER COST,S = 0.1-------10

HOLDING COST, hc = 0.1-------1.0

STOCKOUT COST, s = 0.005, 0.05*LEAD TIME DEMAND

LEAD TIME IN YEARS,L = 0.1, 0.2, 0.4

$\sqrt{\sigma^2 L}$ /DL =0.1

	L=0.1		L=0.2		L=0.4	
MODEL	s=0.005	s=0.05	s=0.005	s=0.05	s=0.005	s=0.05
EBQ-ROL	1	6	11	16	21	26
TATE'S EXPONENTIAL	2	7	12	17	22	27
HEURISTIC	3	8	13	18	23	28
INEXACT	4	9	14	19	24	29
EXACT	5	10	15	20	25	30

$\sqrt{\sigma^2 L}$ /DL =1.0

	L=0.1		L=0.2		L=0.4	
MODEL	s=0.005	s=0.05	s=0.005	s=0.05	s=0.005	s=0.05
EBQ-ROL	31	36	41	46	51	56
TATE'S EXPONENTIAL	32	37	42	47	52	57
HEURISTIC	33	38	43	48	53	58
INEXACT	34	39	44	49	54	59
EXACT	35	40	45	50	55	60

COMPARISON OF INEXACT AND EXACT MODELS

MODEL	$\sqrt{\sigma^2 L}$ /DL =0.1	$\sqrt{\sigma^2 L}$ /DL =1.0
EXACT	61	64
INEXACT	62	65
DIFFERENCES IN INVENTORY COSTS	63	66

CONSTANT LEAD TIMES AND LINEAR BACKORDER COSTS

DEMAND, D	$= 10 \text{ ------} 10^6$
REVIEW COST, RC	$= 0.01 \text{----} 10^2$
ORDER COST, S	$= 0.01 \text{ ---} 10^3$
HOLDING COST, HC	$= 0.01 \text{----} 1.0$
b_1	$= 1.0$
b_2	$= 0.1$
$\sqrt{\sigma^2 L}/DL$	$= 0.1$

PAGES

MODEL	HC=0.01	HC=0.1	HC=1.0
(Q,R)	67	76	85
(M,T)	68	77	86
(nQ,R,T)	69	78	87
(M,R,T)	70	79	88
SAVINGS OF (M,R,T) OVER (M,T)	71	80	89
SAVINGS OF (M,R,T) OVER (nQ,R,T)	72	81	90
SAVINGS OF (Q,R) OVER (M,T)	73	82	91
SAVINGS OF (M,T) OVER (nQ,R,T)	74	83	92
SAVINGS OF (Q,R) OVER (nQ,R,T)	75	84	93

CONSTANT LEAD TIMES AND QUADRATIC BACKORDER COSTS

In addition to the values on the previous page

$b_3 = 1.0$

MODEL	PAGES HC=0.01	HC=0.1	HC=1.0
(Q,R)	94	103	112
(M,T)	95	104	113
(nQ,R,T)	96	105	114
(M,R,T)	97	106	115
SAVINGS OF (M,R,T) OVER (M,T)	98	107	116
SAVINGS OF (M,R,T) OVER (nQ,R,T)	99	108	117
SAVINGS OF (Q,R) OVER (M,T)	100	109	118
SAVINGS OF (M,T) OVER (nQ,R,T)	101	110	119
SAVINGS OF (Q,R) OVER (nQ,R,T)	102	111	120

CONSTANT LEAD TIMES AND EXPONENTIAL BACKORDER COSTS

In addition to the values already given

$b_1 = 0.1$

$b_2 = 2.5$

MODEL	PAGES HC=0.01	HC=0.1	HC=1.0
(Q,R)	121	130	139
(M,T)	122	131	140
(nQ,R,T)	123	132	141
(M,R,T)	124	133	142
SAVINGS OF (M,R,T) OVER (M,T)	125	134	143
SAVINGS OF (M,R,T) OVER (nQ,R,T)	126	135	144
SAVINGS OF (Q,R) OVER (M,T)	127	136	145
SAVINGS OF (M,T) OVER (nQ,R,T)	128	137	146
SAVINGS OF (Q,R) OVER (nQ,R,T)	129	138	147

PERIOD OF GRACE: QUADRATIC BACKORDER COSTS

In addition to the values already given

PERIOD OF GRACE ,p =0.25 OF A LEAD TIME

PAGES

MODEL	HC=0.01	HC=0.1	HC=1.0
(Q,R)	148	157	166
(M,T)	149	158	167
(nQ,R,T)	150	159	168
(M,R,T)	151	160	169
SAVINGS OF (M,R,T) OVER (M,T)	152	161	170
SAVINGS OF ,, OVER (nQ,R,T)	153	162	171
SAVINGS OF (Q,R) OVER (M,T)	154	163	172
SAVINGS OF (M,T) OVER (nQ,R,T)	155	164	173
SAVINGS OF (Q,R) OVER (nQ,R,T)	156	165	174

CONTINUOUS LEAD TIMES

BACKORDER COST FUNCTION

MODEL	LINEAR	QUADRATIC	EXPONENTIAL
(Q,R)	175	184	193
(M,T)	176	185	194
(nQ,R,T)	177	186	195
(M,R,T)	178	187	196
SAVINGS OF (M,R,T) OVER (M,T)	179	188	197
SAVINGS OF (M,R,T) OVER (nQ,R,T)	180	189	198
SAVINGS OF (Q,R) OVER (M,T)	181	190	199
SAVINGS OF (M,T) OVER (nQ,R,T)	182	191	200
SAVINGS OF (Q,R) OVER (nQ,R,T)	183	192	201

Values assigned to α and k are

α =20

k = 2

VARIABLE SUPPLY

MODEL	BACKORDER COST FUNCTION		
	LINEAR	QUADRATIC	EXPONENTIAL
(Q,R)	202	211	220
(M,T)	203	212	221
(nQ,R,T)	204	213	222
(M,R,T)	205	214	223
SAVINGS OF (M,R,T) OVER (M,T)	206	215	224
SAVINGS OF (M,R,T) OVER (nQ,R,T)	207	216	225
SAVINGS OF (Q,R) OVER (M,T)	208	217	226
SAVINGS OF (M,T) OVER (nQ,R,T)	209	218	227
SAVINGS OF (Q,R) OVER (nQ,R,T)	210	219	228

CONTINUOUS LEAD TIMES AND VARIABLE SUPPLY

MODEL	BACKORDER COST FUNCTION		
	LINEAR	QUADRATIC	EXPONENTIAL
(Q,R)	229	238	247
(M,T)	230	239	248
(nQ,R,T)	231	240	249
(M,R,T)	232	241	250
SAVINGS OF (M,R,T) OVER (M,T)	233	242	251
SAVINGS OF (M,R,T) OVER (nQ,R,T)	234	243	252
SAVINGS OF (Q,R) OVER (M,T)	235	244	253
SAVINGS OF (M,T) OVER (nQ,R,T)	236	245	254
SAVINGS OF (Q,R) OVER (nQ,R,T)	237	246	255

CHAPTER 2

DIFFERENT VERSIONS OF MODEL (Q,R)

EBQ-ROL MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1×D×SQRT(L)

STOCKOUT COST =0.005×LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.141	0.448	1.064
	100	0.474	1.492	5.286
	1000	1.916	8.082	38.212
	10000	12.019	78.501	544.846
	100000	106.074	873.822	7075.304
	1000000	1039.545	9860.495	85164.157
S=1.0	10	0.447	1.414	4.478
	100	1.415	4.481	10.638
	1000	4.745	14.922	52.864
	10000	19.163	80.815	382.119
	100000	120.193	785.010	5448.458
	1000000	1060.140	8738.224	70753.038
S=10.0	10	1.414	4.472	14.144
	100	4.472	14.144	44.780
	1000	14.147	44.809	106.384
	10000	47.446	149.222	528.643
	100000	191.628	808.157	3821.193
	1000000	1201.935	7850.099	54484.583

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=0.1*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.141	0.448	1.438
	100	0.472	1.473	5.304
	1000	1.973	6.648	31.402
	10000	11.761	53.227	284.712
	100000	99.286	516.691	2825.487
	1000000	966.070	5151.179	28233.123
S=1.0	10	0.447	1.414	4.479
	100	1.415	4.484	14.379
	1000	4.719	14.727	53.039
	10000	19.728	66.484	314.018
	100000	117.607	532.273	2847.120
	1000000	992.863	5166.905	28254.871
S=10.0	10	1.414	4.472	14.144
	100	4.472	14.145	44.794
	1000	14.149	44.835	143.791
	10000	47.191	147.269	530.395
	100000	197.276	664.836	3140.179
	1000000	1176.072	5322.733	28471.203

HEURISTIC MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=0.1*D* SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.141	0.448	1.435
	100	0.473	1.464	5.218
	1000	1.962	6.575	30.897
	10000	11.757	52.905	277.581
	100000	99.874	573.179	2741.916
	1000000	972.805	5765.940	27384.978
S=1.0	10	0.447	1.414	4.478
	100	1.415	4.481	14.348
	1000	4.730	14.640	52.181
	10000	19.621	65.751	308.973
	100000	117.572	529.049	2775.806
	1000000	998.740	5731.735	27419.164
S=10.0	10	1.414	4.472	14.144
	100	4.472	14.144	44.780
	1000	14.148	44.811	143.478
	10000	47.300	146.397	521.814
	100000	196.206	657.510	3089.729
	1000000	1175.715	5290.492	27758.063

INEXACT MODEL : ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME = 0.1 * D*SQRT(L)

STOCKOUT COST = 0.005* LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.141	0.448	1.435
	100	0.451	1.463	5.231
	1000	1.663	6.537	32.566
	10000	10.437	52.775	300.762
	100000	92.064	514.344	2982.279
	1000000	904.514	5218.064	29793.970
S=1.0	10	0.447	1.414	4.478
	100	1.415	4.481	14.349
	1000	4.509	14.613	52.314
	10000	16.633	65.372	325.658
	100000	104.373	532.270	3010.843
	1000000	923.142	5141.791	30050.702
S=10.0	10	1.414	4.472	14.144
	100	4.472	14.144	44.780
	1000	14.147	44.809	143.485
	10000	45.093	146.342	523.090
	100000	166.332	653.656	3258.043
	1000000	1043.713	5277.304	30078.706

EXACT MODEL : ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME = 0.1* D *SQRT(L)

STOCKOUT COST =0.005 * LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.141	0.448	1.435
	100	0.451	1.463	5.208
	1000	1.663	6.528	30.657
	10000	10.437	52.504	274.958
	100000	92.052	511.140	2715.573
	1000000	904.433	5097.706	27120.280
S=1.0	10	0.447	1.414	4.478
	100	1.415	4.481	14.348
	1000	4.509	14.612	52.086
	10000	16.632	65.282	306.539
	100000	104.364	525.031	2749.546
	1000000	920.549	5111.402	27154.525
S=10.0	10	1.414	4.472	14.144
	100	4.472	14.144	44.780
	1000	14.147	44.809	143.476
	10000	45.093	146.334	520.824
	100000	166.322	653.015	3065.457
	1000000	1043.623	5250.774	27495.230

EBQ-REORDER LEVEL MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME = 0.1 * D * SQRT(L)

STOCKOUT COST =0.05 * LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.147	0.474	1.492
	100	0.520	1.916	8.082
	1000	2.285	12.019	78.501
	10000	14.400	106.074	873.822
	100000	124.583	1039.545	9860.495
	1000000	1248.833	11185.830	99931.360
S=1.0	10	0.450	1.415	4.481
	100	1.469	4.745	14.922
	1000	5.202	19.163	80.815
	10000	22.849	120.193	785.010
	100000	144.004	1060.740	8738.224
	1000000	1245.830	10395.453	98604.950
S=10.0	10	1.414	4.472	14.144
	100	4.498	14.147	44.809
	1000	14.690	47.446	149.222
	10000	52.024	191.628	808.151
	100000	228.491	1201.935	7850.099
	1000000	1440.041	10607.404	87382.236

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME = 0.1*D *SQRT(L)

STOCKOUT COST = 0.05* LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.147	0.472	1.473
	100	0.520	1.973	6.648
	1000	2.281	11.761	53.277
	10000	14.411	99.286	516.681
	100000	124.430	966.070	5151.179
	1000000	1212.890	9631.636	51496.055
S=1.0	10	0.450	1.415	4.484
	100	1.470	4.719	14.727
	1000	5.197	19.727	66.484
	10000	22.810	117.607	532.773
	100000	144.107	992.863	5166.905
	1000000	1244.300	9660.696	51511.794
S=10.	10	1.414	4.472	14.145
	100	4.497	14.149	44.835
	1000	14.697	47.191	147.291
	10000	51.966	197.276	664.836
	100000	228.096	1176.072	5322.733
	1000000	1441.073	9928.628	51669.051

HEURISTIC MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME = 0.1 * D * SQRT(L)

STOCKOUT COST = 0.05 * LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.147	0.473	1.464
	100	0.520	1.962	6.575
	1000	2.286	11.757	52.905
	10000	14.304	99.874	573.179
	100000	121.660	972.805	5765.944
	1000000	1178.703	9700.249	57684.875
S=1.0	10	0.450	1.415	4.481
	100	1.469	4.730	14.640
	1000	5.200	19.621	65.751
	10000	22.856	117.572	529.049
	100000	143.045	998.740	5731.751
	1000000	1216.599	9728.052	57659.492
S=10.0	10	1.414	4.472	14.144
	100	4.498	14.148	44.811
	1000	14.689	47.300	146.397
	10000	52.002	196.206	657.510
	100000	228.557	1175.715	5290.492
	1000000	1430.446	9987.402	57317.446

INEXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME = 0.1 * D * SQRT(L)

STOCKOUT COST = 0.05 * LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=10.
S=0.1	10	0.142	0.451	1.461
	100	0.476	1.663	6.537
	1000	2.071	10.437	52.818
	10000	13.304	92.066	549.979
	100000	111.191	904.471	5128.916
	1000000	1036.974	9033.752	51266.953
S=1.0	10	0.447	1.415	4.481
	100	1.418	4.509	14.613
	1000	4.757	16.633	65.366
	10000	20.708	104.372	527.973
	100000	133.066	920.641	5141.736
	1000000	1116.211	9044.545	51294.349
S=10.0	10	1.414	4.472	14.144
	100	4.473	14.472	44.809
	1000	14.175	45.087	146.133
	10000	47.571	166.350	653.702
	100000	207.083	1043.723	5277.328
	1000000	1332.412	9205.967	51417.420

EXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME = $0.1 \times D \times \mathrm{SQRT}(L)$

STOCKOUT COST =0.05 * LEADTIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.451	1.461
	100	0.476	1.663	6.528
	1000	2.071	10.436	52.503
	10000	13.302	92.055	511.426
	100000	111.142	904.385	5098.044
	1000000	1035.889	9032.652	50959.148
S=1.0	10	0.447	1.415	4.481
	100	1.418	4.509	14.612
	1000	4.757	16.632	65.282
	10000	20.707	104.363	525.035
	100000	133.049	920.529	5111.343
	1000000	1115.777	9043.360	51002.757
S=10.0	10	1.414	4.472	14.144
	100	4.473	14.147	44.809
	1000	14.175	45.087	146.124
	10000	47.571	166.339	653.725
	100000	207.067	1043.629	5252.228
	1000000	1332.232	9205.515	51123.544

EEQ-ROL MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=.1*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.449	1.458
	100	0.501	1.539	6.127
	1000	2.244	11.037	59.673
	10000	15.888	113.984	841.084
	100000	149.433	1282.492	10649.119
	1000000	1500.017	14431.876	126078.474
S=1.0	10	0.447	1.415	4.484
	100	1.415	4.492	14.584
	1000	5.012	15.387	61.271
	10000	22.439	110.366	596.728
	100000	158.884	1139.838	8140.038
	1000000	1494.327	12824.919	106491.190
S=10.0	10	1.414	4.472	14.146
	100	4.472	14.147	44.842
	1000	14.472	44.922	145.840
	10000	50.119	153.867	612.714
	100000	224.388	1103.658	5967.279
	1000000	1588.836	11398.381	84100.379

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME= 0.1*D* SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.450	1.466
	100	0.499	1.530	6.014
	1000	2.274	8.458	41.931
	10000	15.360	74.055	400.948
	100000	138.372	729.476	3994.134
	1000000	1363.954	7283.631	39925.955
S=1.0	10	0.447	1.415	4.487
	100	1.416	4.499	14.656
	1000	4.987	15.390	60.144
	10000	22.742	84.583	419.307
	100000	153.596	740.552	4009.476
	1000000	1383.715	7294.756	39941.339
S=10.0	10	1.414	4.472	14.147
	100	4.472	14.148	44.868
	1000	14.160	44.993	146.561
	10000	49.873	153.903	601.444
	100000	227.418	845.828	4193.066
	1000000	1535.958	7405.576	40094.761

HEURISTIC MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.449	1.458
	100	0.500	1.532	5.910
	1000	2.275	8.323	41.302
	10000	15.402	73.723	389.905
	100000	139.263	813.622	3874.970
	1000000	1373.576	8156.285	38725.519
S=1.0	10	0.447	1.415	4.484
	100	1.416	4.493	14.575
	1000	4.996	15.316	59.099
	10000	22.746	83.233	413.017
	100000	154.016	737.230	3899.050
	1000000	1392.629	8136.192	38749.704
S=10.0	10	1.414	4.472	14.146
	100	4.472	14.147	44.842
	1000	14.158	44.929	145.755
	10000	49.963	153.160	590.986
	100000	227.462	832.326	4130.173
	1000000	1540.163	7372.297	38990.498

INEXACT MODEL : ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1 * D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.449	1.458
	100	0.457	1.526	5.979
	1000	1.943	8.284	44.123
	10000	13.879	73.570	423.329
	100000	128.956	726.078	4215.502
	1000000	1277.771	7251.100	42132.972
S=1.0	10	0.447	1.415	4.484
	100	1.415	4.492	14.575
	1000	4.569	15.259	59.793
	10000	19.427	82.840	441.237
	100000	138.807	735.973	4233.290
	1000000	1289.536	7260.765	42155.281
S=10.0	10	1.414	4.472	14.146
	100	4.472	14.147	44.842
	1000	14.155	44.922	145.753
	10000	45.688	152.592	597.925
	100000	194.266	828.468	4412.274
	1000000	1387.924	7357.070	42336.750

EXACT MODEL : ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1 * D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.449	1.457
	100	0.457	1.526	5.887
	1000	1.943	8.262	40.942
	10000	13.878	73.165	386.174
	100000	128.940	721.755	3837.611
	1000000	1277.603	7207.598	38351.009
S=1.0	10	0.447	1.415	4.484
	100	1.415	4.492	14.574
	1000	4.569	15.258	58.869
	10000	19.425	82.611	409.419
	100000	138.793	731.631	3862.015
	1000000	1289.374	7223.752	38375.600
S=10.0	10	1.414	4.472	14.146
	100	4.472	14.147	44.842
	1000	14.155	44.922	145.745
	10000	45.688	152.383	588.684
	100000	194.253	826.117	4094.161
	1000000	1387.788	7316.695	38617.396

EBQ-ROL MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER THE LEAD TIME=0.1*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.150	0.501	1.539
	100	0.557	2.244	11.037
	1000	2.703	15.888	113.983
	10000	19.001	149.432	1282.492
	100000	174.705	1500.016	14431.876
	1000000	1787.799	16197.978	145978.165
S=1.0	10	0.452	1.416	4.492
	100	1.500	5.012	15.387
	1000	5.571	22.439	110.366
	10000	27.029	158.884	1139.838
	100000	190.017	1494.327	12824.872
	1000000	1747.033	15000.161	144318.757
S=10.0	10	1.414	4.472	14.148
	100	4.525	14.155	44.922
	1000	15.003	50.119	153.867
	10000	55.711	224.388	1103.658
	100000	270.287	1588.836	11398.381
	1000000	1900.169	14943.274	128248.718

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.150	0.499	4.539
	100	0.556	2.274	8.458
	1000	2.698	15.360	74.055
	10000	19.041	138.372	729.476
	100000	173.611	1363.955	7283.631
	1000000	1671.602	13618.886	72825.183
S=1.0	10	0.452	1.416	4.500
	100	1.500	4.987	15.390
	1000	5.558	22.742	84.583
	10000	26.979	153.596	740.551
	100000	190.407	1383.715	7294.756
	1000000	1736.108	13639.548	72836.312
S=10.0	10	1.414	4.472	14.149
	100	4.523	14.160	44.995
	1000	14.996	49.873	153.899
	10000	55.580	227.418	845.828
	100000	269.793	1535.958	7405.516
	1000000	1904.068	13837.153	72947.563

HEURISTIC MODEL: ANNAUL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.150	0.500	1.532
	100	0.557	2.275	8.323
	1000	2.700	15.402	73.723
	10000	18.809	139.263	813.622
	100000	169.256	1373.576	8156.295
	1000000	1619.798	13716.026	81580.691
S=1.0	10	0.452	1.416	4.493
	100	1.500	4.996	15.316
	1000	5.567	22.746	83.233
	10000	26.997	154.016	737.230
	100000	188.088	1392.629	8136.218
	1000000	1692.561	13735.763	81562.954
S=10.0	10	1.414	4.472	14.148
	100	4.525	14.158	44.929
	1000	15.001	49.963	153.160
	10000	55.667	227.462	832.326
	100000	269.967	1540.164	7372.297
	1000000	1880.881	13926.285	81362.179

INEXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.457	1.526
	100	0.507	1.943	8.284
	1000	2.454	13.880	73.570
	10000	17.657	128.965	726.820
	100000	159.155	1277.761	7251.108
	1000000	1491.694	12765.702	72504.298
S=1.0	10	0.447	1.415	4.492
	100	1.423	4.573	15.259
	1000	5.071	19.427	82.836
	10000	24.545	138.788	735.725
	100000	176.487	1289.515	7269.736
	1000000	1573.457	12777.267	72510.977
S=10.	10	1.414	4.472	14.147
	100	4.473	14.155	44.921
	1000	14.234	45.688	153.876
	10000	50.712	194.267	828.383
	100000	245.449	1387.913	7389.942
	1000000	1764.945	12895.728	72631.025

EXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=0.1*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.457	1.526
	100	0.507	1.943	8.261
	1000	2.454	13.878	73.163
	10000	17.647	128.941	722.565
	100000	159.054	1277.288	7208.135
	1000000	1490.464	12764.498	72067.816
S=1.0	10	0.447	1.415	4.492
	100	1.423	4.573	15.259
	1000	5.071	19.425	82.612
	10000	24.542	138.778	731.760
	100000	176.460	1289.342	7217.515
	1000000	1572.966	12773.875	72083.702
S=10.	10	1.414	4.472	14.147
	100	4.473	14.155	44.921
	1000	14.234	45.688	153.867
	10000	50.712	194.254	826.173
	100000	245.427	1387.783	7316.283
	1000000	1764.666	12893.614	72175.173

EBQ-ROL MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.452	1.509
	100	0.541	1.734	7.712
	1000	2.727	15.448	100.473
	10000	21.627	166.587	1288.861
	100000	209.013	1881.479	15932.285
	1000000	2169.070	21102.289	186014.787
S=1.0	10	0.447	1.415	3.357
	100	1.417	4.528	15.094
	1000	5.405	17.341	77.123
	10000	27.274	154.484	1004.728
	100000	216.273	1665.871	12888.610
	1000000	2090.132	18814.793	159322.850
S=10.0	10	1.414	4.472	14.149
	100	4.473	14.152	33.567
	1000	14.174	45.283	150.940
	10000	54.052	173.406	771.230
	100000	272.745	1544.840	10047.281
	1000000	2162.730	16658.710	128886.102

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=0.1*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.453	1.517
	100	0.539	1.693	7.209
	1000	2.728	11.152	57.654
	10000	20.629	103.861	565.821
	100000	194.161	1030.760	5647.350
	1000000	1927.303	10299.736	56462.619
S=1.0	10	0.447	1.415	4.501
	100	1.419	4.531	15.169
	1000	5.394	16.930	72.087
	10000	27.280	111.524	576.544
	100000	206.288	1038.612	5658.215
	1000000	1941.612	10307.604	56473.498
S=10.0	10	1.414	4.472	14.151
	100	4.473	14.154	45.015
	1000	14.190	45.313	151.691
	10000	53.935	169.298	720.868
	100000	272.801	1115.244	5765.437
	1000000	2062.881	10386.118	56582.145

HEURISTIC MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=0.1*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.452	1.506
	100	0.538	1.676	7.804
	1000	2.741	11.037	56.623
	10000	20.724	103.479	549.520
	100000	195.472	1152.294	5478.136
	1000000	1940.983	11536.150	54764.253
S=1.0	10	0.447	1.415	4.497
	100	1.419	4.521	15.056
	1000	5.383	16.760	70.839
	10000	27.407	110.373	566.229
	100000	207.239	1034.795	5495.204
	1000000	1954.723	11522.897	54781.359
S=10.0	10	1.414	4.472	14.149
	100	4.473	14.152	44.967
	1000	14.188	45.212	150.565
	10000	53.834	167.601	708.394
	100000	274.065	1103.726	5662.293
	1000000	2072.390	10347.948	54952.040

INEXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.452	1.506
	100	0.472	1.667	7.288
	1000	2.381	10.998	61.002
	10000	18.903	103.301	597.277
	100000	181.453	1026.484	5961.383
	1000000	1806.136	10253.925	59528.447
S=1.0	10	0.447	1.415	4.497
	100	1.417	4.520	15.055
	1000	4.721	16.667	72.880
	10000	23.805	109.979	610.034
	100000	189.021	1033.024	5974.092
	1000000	1814.533	10261.216	59596.366
S=10.0	10	1.414	4.472	14.149
	100	4.473	14.152	44.970
	1000	14.174	45.197	150.550
	10000	47.213	166.672	728.802
	100000	238.051	1099.793	6100.140
	1000000	1890.178	10328.964	59781.015

EXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.142	0.452	1.505
	100	0.472	1.667	7.042
	1000	2.380	10.954	56.104
	10000	18.900	102.694	544.249
	100000	181.442	1019.934	5425.180
	1000000	1806.134	10278.359	54234.654
S=1.0	10	0.447	1.415	4.497
	100	1.417	4.519	15.051
	1000	4.721	16.665	70.418
	10000	23.803	109.543	561.060
	100000	189.600	1026.998	5442.363
	1000000	1814.281	10199.712	54251.814
S=10.0	10	1.414	4.472	14.149
	100	4.473	14.152	44.968
	1000	14.174	45.195	150.508
	10000	47.210	166.646	704.184
	100000	238.032	1095.391	5610.344
	1000000	1890.000	10280.352	54427.917

EBQ -ROL MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=0.1*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.150	0.541	1.734
	100	0.620	2.727	15.448
	1000	3.345	21.627	166.587
	10000	25.869	209.013	1881.479
	100000	247.722	2169.070	21102.289
	1000000	2514.736	23371.118	231785.391
S=1.0	10	0.452	1.417	4.528
	100	1.501	5.405	17.341
	1000	6.203	27.274	154.484
	10000	33.449	216.273	1665.871
	100000	258.693	2090.132	18814.793
	1000000	2477.221	21690.701	211022.893
S=10.0	10	1.414	4.473	14.152
	100	4.527	14.174	45.283
	1000	15.014	54.052	173.406
	10000	62.026	272.745	1544.840
	100000	334.494	2162.730	16658.710
	1000000	2586.929	20901.324	188147.727

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=0.1*D* SQRT(L)

STOCKOUT COST =0.05* LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.150	0.539	1.693
	100	0.572	2.728	11.152
	1000	3.214	20.629	103.861
	10000	24.854	194.161	1030.760
	100000	233.376	1927.303	10299.736
	1000000	1993.520	19037.867	102406.535
S=1.0	10	0.452	1.419	4.531
	100	1.501	5.394	16.930
	1000	5.722	27.280	111.524
	10000	32.144	206.288	1038.612
	100000	248.539	1941.612	10307.604
	1000000	2333.760	19273.033	102997.357
S=10.0	10	1.414	4.473	14.154
	100	4.525	14.190	45.313
	1000	15.011	53.935	169.298
	10000	57.220	272.801	1115.244
	100000	321.444	2062.881	10386.118
	1000000	2485.392	19416.116	103076.041

HEURISTIC MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1 D SQRT(L)

STOCKOUT COST =0.05 LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.150	0.538	1.676
	100	0.581	2.741	11.037
	1000	3.260	20.724	103.479
	10000	25.462	195.472	1152.294
	100000	240.559	1940.983	11536.150
	1000000	2247.765	19556.769	115535.086
S=1.0	10	0.452	1.419	4.521
	100	1.501	5.383	16.760
	1000	5.811	27.407	110.373
	10000	32.597	207.239	1034.795
	100000	254.623	1954.723	11522.897
	1000000	2405.623	19409.825	115361.498
S=10.0	10	1.414	4.473	14.152
	100	4.527	14.188	45.212
	1000	15.014	53.834	167.601
	10000	58.113	274.065	1103.726
	100000	325.967	2072.390	10347.948
	1000000	2546.160	19547.232	115228.967

INEXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.144	0.472	1.667
	100	0.554	2.381	10.998
	1000	3.024	18.902	105.199
	10000	23.846	181.454	1027.173
	100000	225.380	1806.036	10254.929
	1000000	1991.888	19044.366	102544.894
S=1.0	10	0.447	1.417	4.520
	100	1.439	4.721	16.667
	1000	5.541	23.805	109.983
	10000	30.243	189.021	1034.009
	100000	238.598	1814.662	10260.680
	1000000	2174.698	18061.208	102549.515
S=10.	10	1.414	4.473	14.152
	100	4.475	14.174	45.197
	1000	14.393	47.213	166.671
	10000	55.413	238.050	1103.446
	100000	302.423	1890.289	10329.344
	1000000	2383.543	18145.741	102606.761

EXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =0.1*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.01	10	0.144	0.472	1.666
	100	0.554	2.380	10.954
	1000	3.024	18.900	103.485
	10000	23.839	181.434	1020.091
	100000	225.327	1806.207	10197.118
	1000000	1986.451	18050.376	101970.686
S=1.0	10	0.447	1.417	4.519
	100	1.439	4.721	16.665
	1000	5.541	23.803	109.547
	10000	30.240	189.000	1028.986
	100000	239.491	1814.362	10200.222
	1000000	2172.798	18058.483	101931.945
S=10.0	10	1.414	4.472	14.152
	100	4.475	14.174	45.195
	1000	14.393	47.210	166.646
	10000	55.413	238.031	1095.381
	100000	302.395	1890.080	10269.363
	1000000	2382.826	18143.900	102001.658

EBQ-ROL MODEL:ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0^D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.146	0.503	2.378
	100	0.529	2.503	16.537
	1000	3.821	21.285	154.142
	10000	54.485	310.404	1850.759
	100000	707.530	5276.569	30365.369
	1000000	8516.416	70124.633	526042.509
S=1.0	10	0.448	1.461	5.002
	100	1.464	5.028	23.782
	1000	5.286	25.094	165.368
	10000	38.212	212.846	1541.423
	100000	544.846	3104.038	18507.593
	1000000	7075.304	52765.689	303653.693
S=10.	10	1.414	4.478	14.607
	100	4.478	14.610	50.019
	1000	14.638	50.278	237.818
	10000	52.864	250.936	1653.676
	100000	382.119	2128.459	15414.228
	1000000	5448.458	31040.383	185075.928

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
	10	0.144	0.506	2.533
	100	0.530	2.581	20.362
S=0.1	1000	3.140	21.019	197.396
	10000	28.471	204.253	1967.539
	100000	282.549	2036.415	19668.944
	1000000	2823.312	20358.018	196682.989
	10	0.448	1.436	5.048
	100	1.438	5.064	25.331
S=1.0	1000	5.304	25.815	203.615
	10000	31.402	210.188	1973.962
	100000	284.712	2042.533	19675.388
	1000000	2825.487	20364.155	196689.435
	10	1.414	4.479	14.353
	100	4.479	14.355	50.478
S=10.0	1000	14.379	50.641	253.309
	10000	53.039	258.148	2036.154
	100000	314.018	2101.880	19739.616
	1000000	2847.120	20425.333	196753.882

HEURISTIC MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.143	0.502	2.375
	100	0.522	2.468	16.384
	1000	3.090	18.721	145.806
	10000	27.758	178.165	1430.280
	100000	274.192	1771.827	14272.557
	1000000	2738.498	17708.355	142695.037
S=1.0	10	0.448	1.432	5.001
	100	1.435	5.022	23.747
	1000	5.218	24.682	163.841
	10000	30.897	187.212	1458.063
	100000	277.581	1781.651	14302.797
	1000000	2741.916	17718.272	142725.569
S=10.0	10	1.414	4.478	14.318
	100	4.478	14.321	50.014
	1000	14.348	50.224	237.471
	10000	52.181	246.818	1638.415
	100000	308.973	1872.121	14580.634
	1000000	2775.806	17816.513	143927.970

INEXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0 * D*SQRT(L)

STOCKOUT COST =0.005* LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.144	0.502	2.655
	100	0.523	2.730	22.924
	1000	3.257	23.909	225.297
	10000	30.079	235.456	2248.984
	100000	298.310	2350.876	22486.332
	1000000	2980.787	23505.194	224858.133
S=1.0	10	0.448	1.432	5.003
	100	1.435	5.025	26.547
	1000	5.231	27.304	229.236
	10000	32.566	239.090	2252.996
	100000	300.762	2354.555	22489.949
	1000000	2995.507	23513.943	224888.756
S=10.0	10	1.414	4.478	14.319
	100	4.478	14.321	50.025
	1000	14.349	50.250	265.472
	10000	52.309	273.099	2292.831
	100000	325.660	2390.989	22541.606
	1000000	3008.577	23546.121	224903.983

EXACT MODEL: ANNUAL INVENTORY COST

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.143	0.500	2.345
	100	0.521	2.438	16.217
	1000	3.065	18.485	144.810
	10000	27.495	176.009	1421.542
	100000	271.548	1750.502	14186.505
	1000000	2712.861	17495.335	141837.681
S=1.0	10	0.448	1.432	4.983
	100	1.435	5.007	23.447
	1000	5.208	24.377	162.166
	10000	30.654	184.852	1448.100
	100000	275.253	1760.084	14215.360
	1000000	2715.452	17505.066	141871.364
S=10.0	10	1.414	4.478	14.318
	100	4.478	14.320	49.826
	1000	14.348	50.045	234.466
	10000	52.083	243.774	1621.654
	100000	306.537	1848.517	14481.007
	1000000	2749.521	17601.343	142154.475

EBQ-ROL MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.149	0.529	2.509
	100	0.808	3.821	21.285
	1000	7.850	54.485	310.404
	10000	87.382	707.530	5276,569
	100000	986.049	8516.416	70124.633
	1000000	9993.136	97941.940	849626.749
S=1.0	10	0.448	1.064	5.028
	100	1.492	5.286	25.094
	1000	8.082	38.286	212.846
	10000	78.501	544.846	3104.038
	100000	873.822	7075.304	52765.689
	1000000	9860.495	85164.157	701246.327
S=10.0	10	1.414	4.478	10.610
	100	4.481	10.638	50.278
	1000	14.922	52.864	250.936
	10000	80.815	382.119	2128.459
	100000	785.010	5448.458	31040.383
	1000000	8738.224	70753.038	527656.888

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.147	0.530	2.581
	100	0.665	3.140	21.019
	1000	5.323	28.471	204.253
	10000	51.669	282.549	2036.415
	100000	515.118	2823.312	20358.018
	1000000	5149.605	28230.947	203574.037
S=1.0	10	0.448	1.435	5.064
	100	1.473	5.304	25.315
	1000	6.648	31.402	210.188
	10000	53.227	284.712	2042.533
	100000	516.691	2825.487	20364.155
	1000000	5151.179	28233.123	203580.176
S=10.0	10	1.414	4.479	14.355
	100	4.484	14.379	50.641
	1000	14.727	53.039	258.148
	10000	66.484	314.018	2101.880
	100000	532.273	2847.120	20425.333
	1000000	5166.905	28254.871	203641.550

HEURISTIC MODEL ANNUAL:INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=1.0*D*SQRT(L)

STOCKOUT COST 0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.146	0.522	2.468
	100	0.658	3.090	18.721
	1000	5.290	27.758	178.165
	10000	57.414	474.192	1771.827
	100000	576.971	2738.498	17708.355
	1000000	5772.205	27381.556	177073.624
S=1.0	10	0.448	1.435	5.022
	100	1.464	5.218	24.682
	1000	6.575	30.897	187.212
	10000	52.905	277.581	1781.651
	100000	574.144	2741.916	17718.272
	1000000	5769.706	27384.978	177083.550
S=10.0	10	1.414	4.478	14.321
	100	4.481	14.348	50.224
	1000	14.640	52.181	246.818
	10000	65.751	308.973	1872.121
	100000	529.049	2775.806	17816.513
	1000000	5741.438	27419.164	177182.716

INEXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.146	0.523	2.730
	100	0.654	3.257	23.911
	1000	5.277	30.076	235.464
	10000	51.418	298.199	2350.882
	100000	512.810	2989.963	23505.503
	1000000	5126.790	29820.971	235047.278
S=1.0	10	0.448	1.435	5.025
	100	1.461	5.231	27.304
	1000	6.537	32.568	239.090
	10000	52.774	300.778	2354.585
	100000	546.905	2982.086	23509.695
	1000000	5128.691	29793.897	235090.552
S=10.0	10	1.414	4.478	14.321
	100	4.481	14.350	50.250
	1000	14.634	52.309	273.042
	10000	65.366	326.351	2390.893
	100000	527.727	3008.553	23545.381
	1000000	5141.815	29819.685	235091.129

EXACT MODEL : ANNUAL INVENTORY COSTS

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.05 * LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.146	0.521	2.438
	100	0.653	3.065	18.509
	1000	5.250	27.497	176.019
	10000	51.151	271.547	1750.515
	100000	509.733	2712.669	17495.348
	1000000	5095.971	27117.224	174943.738
S=1.0	10	0.448	1.435	5.005
	100	1.461	5.208	24.377
	1000	6.528	30.654	184.879
	10000	52.511	274.964	1760.083
	100000	511.144	2715.492	17505.251
	1000000	5097.318	27120.658	174957.633
S=10.0	10	1.414	4.478	14.320
	100	4.481	14.348	50.045
	1000	14.613	52.083	243.774
	10000	65.283	306.537	1848.548
	100000	525.034	2749.530	17601.255
	1000000	5111.351	27161.514	175050.188

EBQ-ROL MODEL — ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STNADARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.146	0.549	2.905
	100	0.613	3.183	22.295
	1000	5.967	31.956	223.922
	10000	84.100	538.107	2930.911
	100000	1064.912	8222.932	53254.492
	1000000	12607.847	105857.881	820512.225
S=1.0	10	0.448	1.450	5.428
	100	1.458	5.492	29.049
	1000	6.127	31.833	222.949
	10000	59.673	319.562	2239.223
	100000	814.004	5381.072	29309.105
	1000000	10649.119	82229.317	532544.924
S=10.0	10	1.415	4.483	14.496
	100	4.484	14.504	54.283
	1000	14.584	54.919	290.494
	10000	61.271	318.333	2229.495
	100000	596.728	3195.624	22392.228
	1000000	8410.038	53810.720	293091.053

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL:

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.005* LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.147	0.554	3.223
	100	0.601	3.302	28.313
	1000	4.193	29.264	278.656
	10000	40.095	228.378	2782.014
	100000	399.413	2879.444	27815.580
	1000000	3992.596	28790.102	278151.243
S=1.0	10	0.449	1.456	5.509
	100	1.466	5.544	32.228
	1000	6.014	33.024	283.132
	10000	41.931	292.644	2786.564
	100000	400.948	2883.778	27820.138
	1000000	3994.134	28794.443	278155.802
S=10.0	10	1.415	4.486	14.553
	100	4.487	14.560	55.089
	1000	14.656	55.445	322.283
	10000	60.144	330.235	2831.318
	100000	419.307	2926.443	27865.640
	1000000	4009.476	28837.779	278201.381

HEURISTIC MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=1.0*D*SQRT(L)

STOCKOUT COST =0.005* LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.146	0.548	2.897
	100	0.591	3.083	21.946
	1000	4.130	25.788	204.090
	10000	38.990	251.195	2020.354
	100000	387.497	2504.963	20182.046
	1000000	3872.552	25042.616	201798.855
S=1.0	10	0.448	1.450	5.427
	100	1.458	5.477	28.973
	1000	5.910	30.830	219.456
	10000	41.302	257.876	2040.899
	100000	389.905	2511.946	20203.543
	1000000	3874.970	25049.632	201820.457
S=10.0	10	1.415	4.483	14.496
	100	4.484	14.503	54.269
	1000	14.575	54.765	289.725
	10000	59.099	308.302	2194.559
	100000	413.017	2578.761	20408.988
	1000000	3899.050	25119.460	202035.426

INEXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME = 1.0*D * SQRT(L)

STOCKOUT COST = 0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.146	0.554	3.479
	100	0.598	3.602	32.111
	1000	4.412	33.528	318.318
	10000	42.333	332.703	3180.236
	100000	421.516	3324.857	31800.340
	1000000	4213.293	33240.926	317996.911
S=1.0	10	0.448	1.450	5.483
	100	1.458	5.535	34.788
	1000	5.979	36.018	321.104
	10000	44.125	335.278	3185.127
	100000	423.472	3327.303	31802.568
	1000000	4215.123	33245.222	318003.980
S=10.0	10	1.415	4.483	14.497
	100	4.484	14.500	54.832
	1000	14.575	55.355	347.927
	10000	59.796	360.191	3211.300
	100000	441.240	3352.770	31836.550
	1000000	4233.292	33272.563	318023.221

EXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.146	0.504	2.860
	100	0.589	3.043	21.751
	1000	4.095	25.469	202.773
	10000	38.681	248.164	2008.096
	100000	383.758	2474.827	20061.723
	1000000	3835.583	24741.602	200583.562
S=1.0	10	0.448	1.450	5.389
	100	1.458	5.440	28.599
	1000	5.887	30.432	217.516
	10000	40.942	254.687	2027.728
	100000	386.180	2481.645	20086.960
	1000000	3837.531	24748.465	200630.896
S=10.0	10	1.415	4.483	14.496
	100	4.484	14.499	53.889
	1000	14.574	54.400	285.990
	10000	58.868	304.400	2175.250
	100000	409.457	2546.879	20277.279
	1000000	3861.739	24820.735	200809.529

EBQ-ROL MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.154	0.613	3.183
	100	1.104	5.967	31.956
	1000	11.398	84.100	538.107
	10000	128.249	1064.912	8222.932
	100000	1443.188	12607.847	105857.882
	1000000	14597.816	143661.682	1258768.797
S=1.0	10	0.449	1.458	5.492
	100	1.539	6.127	31.833
	1000	11.037	59.673	319.562
	10000	113.984	841.004	5381.072
	100000	1282.492	10649.119	82229.317
	10000000	14431.876	126078.474	1058578.808
S=10.0	10	1.415	4.484	14.504
	100	4.492	14.584	54.919
	1000	15.387	61.271	318.333
	10000	110.366	596.728	3195.624
	100000	1139.838	8410.038	53810.720
	1000000	12824.919	106491.190	822293.174

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.154	0.601	3.302
	100	0.846	4.193	29.264
	1000	7.406	40.095	288.378
	10000	72.948	399.413	2879.444
	100000	728.363	3992.596	28790.102
	1000000	7282.518	39924.417	287896.682
S=1.0	10	0.452	1.466	5.544
	100	1.539	6.014	33.024
	1000	8.458	41.931	292.644
	10000	74.055	400.948	2883.778
	100000	729.476	3994.134	28794.443
	1000000	7283.631	39925.955	287901.023
S=10.0	10	1.415	4.487	14.560
	100	4.499	14.656	55.445
	1000	15.390	60.144	330.235
	10000	84.583	419.307	2926.443
	100000	740.552	4009.478	28837.779
	1000000	7294.756	39941.339	287944.428

HEURISTIC MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.05* LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.01	10	0.153	0.591	3.083
	100	0.832	4.130	25.788
	1000	7.372	38.990	251.195
	10000	81.436	387.497	2504.963
	100000	816.150	3872.552	25042.616
	1000000	8163.383	38723.099	250419.140
S=1.0	10	0.449	1.458	5.477
	100	1.532	5.910	30.830
	1000	8.323	41.302	257.876
	10000	73.723	389.905	2511.946
	100000	814.359	3874.970	25049.632
	1000000	8161.504	38725.519	250426.160
S=10.0	10	1.415	4.484	14.503
	100	4.493	14.575	54.765
	1000	15.316	59.099	308.302
	10000	83.233	413.017	2578.761
	100000	737.230	3819.050	25119.460
	1000000	8143.594	38749.704	250496.318

INEXACT MODEL:ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.153	0.598	3.602
	100	0.828	4.412	33.602
	1000	7.519	42.409	332.699
	10000	72.611	421.803	3324.480
	100000	725.118	4213.299	33240.925
	1000000	7250.377	42131.085	332406.755
S=1.0	10	0.449	1.458	5.536
	100	1.526	5.979	36.018
	1000	8.292	44.129	335.286
	10000	73.587	423.472	3327.303
	100000	726.087	4215.124	33246.557
	1000000	7251.529	42134.131	332443.059
S=10.0	10	1.415	4.484	14.500
	100	4.492	14.575	55.355
	1000	15.259	59.793	360.199
	10000	82.837	441.235	3352.831
	100000	736.142	4233.308	33269.441
	1000000	7260.766	42154.486	332446.471

EXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.2 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=1.0*D*SQRT(L)

STOCKOUT COST =0.05* LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.153	0.589	3.043
	100	0.826	4.094	25.469
	1000	7.337	38.633	248.167
	10000	72.217	383.753	2474.925
	100000	720.792	3835.297	24741.383
	1000000	7206.720	38348.574	247410.061
S=1.0	10	0.449	1.457	5.440
	100	1.528	5.887	30.430
	1000	8.296	40.942	254.689
	10000	73.163	386.173	2481.648
	100000	721.752	3837.567	24748.497
	1000000	7210.768	38351.255	247413.872
S=10.0	10	1.415	4.484	14.499
	100	4.492	14.574	54.400
	1000	15.387	58.868	304.293
	10000	82.620	409.416	2546.869
	100000	733.980	3861.921	24816.359
	1000000	7217.555	38375.337	247495.222

EBQ-ROL MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=1.0*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC+0.1	HC=1.0
S=0.1	10	0.151	0.624	3.669
	100	0.771	4.249	30.774
	1000	10.047	50.332	332.900
	10000	128.886	963.691	4785.948
	100000	1593.229	12694.329	95979.949
S=1.0	10	0.336	1.487	6.098
	100	1.509	6.245	36.687
	1000	7.712	42.486	307.744
	10000	100.473	503.317	3329.702
	100000	1288.861	9636.906	47859.484
	1000000	15932.285	126943.286	959799.485
S=10.0	10	1.415	3.354	14.847
	100	3.354	14.869	60.982
	1000	15.094	62.449	366.868
	10000	77.123	424.856	3077.440
	100000	1004.728	5033.165	33297.016
	1000000	12888.610	96369.059	478594.838

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=1.0*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.152	0.634	4.266
	100	0.721	4.389	39.692
	1000	5.765	41.053	393.722
	10000	56.582	407.488	3934.004
	100000	564.735	4071.808	39336.813
	1000000	5646.262	40715.012	393364.903
S=1.0	10	0.450	1.495	6.270
	100	1.517	6.340	42.656
	1000	7.209	43.889	396.916
	10000	57.654	410.530	3937.224
	100000	565.821	4074.875	39340.036
	1000000	5647.350	40718.082	393368.726
S=10.0	10	1.415	4.499	14.934
	100	4.501	14.951	62.696
	1000	15.169	63.403	426.555
	10000	72.087	438.888	3969.160
	100000	576.544	4105.304	39372.241
	1000000	5658.215	40748.752	393400.350

HEURISTIC MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=1.0*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.151	0.621	3.652
	100	0.708	4.002	29.949
	1000	5.662	35.953	287.041
	10000	54.952	354.695	2855.527
	100000	547.814	3542.002	28540.026
	1000000	5476.425	35415.056	285384.980
S=1.0	10	0.450	1.487	6.095
	100	1.506	6.205	36.518
	1000	7.084	40.019	299.487
	10000	56.623	359.534	2870.414
	100000	549.520	3546.952	28555.267
	1000000	5478.136	35420.018	285400.259
S=10.0	10	1.415	4.494	14.847
	100	4.497	14.866	60.945
	1000	15.056	62.052	365.184
	10000	70.839	400.191	2994.868
	100000	566.229	3595.337	28704.142
	1000000	5495.204	35469.523	285552.674

INEXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.151	0.645	4.714
	100	0.729	4.901	45.193
	1000	6.100	47.213	450.019
	10000	59.726	470.298	4497.336
	100000	595.964	4701.199	44975.008
	1000000	5958.392	47010.051	499728.523
S=1.0	10	0.450	1.486	6.337
	100	1.506	6.446	47.181
	1000	7.288	49.008	451.948
	10000	61.021	472.149	4499.487
	100000	593.363	4702.980	44973.068
	1000000	5959.678	47011.417	449800.970
	10	1.415	4.495	14.835
	100	4.497	14.855	63.371
	1000	15.055	64.460	471.340
	10000	72.881	490.084	4519.149
	100000	610.020	4721.346	44993.114
	1000000	5972.539	47029.737	449907.897

EXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.005*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.151	0.615	3.608
	100	0.705	3.950	29.717
	1000	5.610	35.514	285.249
	10000	54.424	350.422	2838.267
	100000	542.568	3499.402	28369.997
	1000000	5424.309	34989.134	283666.479
S=1.0	10	0.450	1.485	6.033
	100	1.505	6.145	36.078
	1000	7.042	39.501	297.165
	10000	56.104	385.143	2852.504
	100000	544.479	3504.222	28382.652
	1000000	5426.479	34994.472	283681.202
S=10.0	10	1.415	4.494	14.831
	100	4.497	14.852	60.326
	1000	15.051	61.447	360.780
	10000	70.449	394.998	2971.652
	100000	561.049	3551.490	28525.295
	1000000	5442.424	35043.786	283826.507

EBQ-ROL MODEL: ANNAUL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.173	0.771	4.249
	100	1.545	10.047	50.332
	1000	16.659	128.886	963.691
	10000	188.148	1593.229	12694.329
	100000	2110.229	18601.478	158687.067
	1000000	21288.323	210369.319	1858131.838
S=1.0	10	0.453	1.509	6.245
	100	1.734	7.712	42.486
	1000	15.448	100.473	503.317
	10000	166.587	1288.861	9636.906
	100000	1881.479	15932.285	126943.286
	1000000	21102.289	186014.787	1586870.666
S=10.0	10	1.415	4.503	14.869
	100	4.527	15.094	62.449
	1000	17.341	77.123	424.856
	10000	154.484	1004.728	5033.165
	100000	1665.871	12888.610	96369.059
	1000000	18814.793	159322.850	1269432.856

HEURISTIC MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.168	0.708	4.002
	100	1.104	5.662	35.953
	1000	11.274	54.953	354.695
	10000	115.313	547.814	3542.002
	100000	1154.350	5476.425	35415.056
	1000000	11544.986	54762.542	354145.593
S=1.0	10	0.452	1.506	6.205
	100	1.676	7.084	40.019
	1000	11.037	56.623	359.534
	10000	112.741	549.520	3546.952
	100000	1153.126	5478.136	35420.018
	1000000	11543.502	54764.253	354150.557
S=10.0	10	1.415	4.497	14.866
	100	4.521	15.056	62.052
	1000	16.760	70.839	400.191
	10000	110.373	566.229	3595.337
	100000	1127.406	5495.204	35469.523
	1000000	11531.260	54781.359	354200.179

TATE'S EXPONENTIAL APPROXIMATION TO THE HEURISTIC MODEL:

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.169	0.721	4.389
	100	1.115	5.765	41.053
	1000	10.386	56.582	407.488
	10000	103.076	564.735	4071.808
	100000	1029.974	5646.262	40715.012
	1000000	10298.949	56461.530	407147.051
S=1.0	10	0.453	1.517	6.340
	100	1.693	7.209	43.889
	1000	11.152	57.654	410.530
	10000	103.861	565.821	4074.875
	100000	1030.760	5647.350	40718.082
	1000000	10299.736	56462.619	407150.120
S=10.0	10	1.415	4.501	14.951
	100	4.531	15.169	63.403
	1000	16.930	72.087	438.888
	10000	111.524	576.344	4105.304
	100000	1038.612	5658.215	40748.752
	1000000	10307.604	56473.498	407180.815

INEXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME =1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.167	0.729	4.901
	100	1.100	6.104	47.218
	1000	10.330	59.726	470.298
	10000	102.609	595.965	4701.140
	100000	1025.409	5958.415	47011.174
	1000000	10253.336	59582.598	470108.016
S=1.0	10	0.452	1.506	6.446
	100	1.667	7.289	49.008
	1000	11.004	61.004	472.126
	10000	103.301	597.250	4703.311
	100000	1026.072	5959.826	47012.564
	1000000	10254.369	59588.240	470111.389
S=10.0	10	1.415	4.497	14.855
	100	4.519	15.055	64.460
	1000	16.670	72.883	490.088
	10000	110.018	610.030	4721.325
	100000	1032.889	5972.504	47029.722
	1000000	10262.280	59596.609	470125.326

EXACT MODEL: ANNUAL INVENTORY COSTS

LEAD TIME IS 0.4 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEAD TIME=1.0*D*SQRT(L)

STOCKOUT COST =0.05*LEAD TIME DEMAND

	ANNUAL DEMAND	HC=0.01	HC=0.1	HC=1.0
S=0.1	10	0.167	0.704	3.950
	100	1.095	5.610	35.514
	1000	10.269	54.448	350.593
	10000	101.995	542.518	3499.548
	100000	1019.229	5424.159	34989.568
	1000000	10192.134	54233.423	349885.700
S=1.0	10	0.452	1.505	6.145
	100	1.666	7.042	39.500
	1000	10.954	56.106	355.146
	10000	103.070	544.256	3504.430
	100000	1019.946	5425.883	34994.309
	1000000	10195.364	54234.902	349893.944
S=10.0	10	1.415	4.497	14.852
	100	4.519	15.051	61.447
	1000	16.665	70.419	394.998
	10000	109.537	561.034	3551.434
	100000	1027.037	5442.360	35051.274
	1000000	10200.244	54255.864	349941.231

DEMAND FOLLOWS A NORMAL DISTRIBUTION

EXACT MODEL OF (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEADTIME =0.10*D*SQRT(L)

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED=0.005*LEADTIME DEMAND

	DEMAND	HC=0.01	HC=0.10	HC=1.0
	10.	0.147	0.479	1.536
	100.	0.515	1.932	7.526
S= 0.1	1000.	2.208	11.185	59.421
	10000.	13.494	92.449	566.958
	100000.	110.339	888.758	5636.822
	1000000.	1009.800	8843.781	56334.733
	10.	0.450	1.425	4.512
	100.	1.466	4.789	15.362
S= 1.0	1000.	5.152	19.316	75.258
	10000.	22.078	111.848	594.207
	100000.	134.943	924.483	5669.671
	1000000.	1103.116	8887.386	56368.616
	10.	1.415	4.476	14.155
	100.	4.504	14.251	45.118
S=10.0	1000.	14.663	47.892	153.622
	10000.	51.518	193.163	752.583
	100000.	220.781	1118.519	5942.079
	1000000.	1349.517	9245.099	56695.490

DEMAND FOLLOWS A NORMAL DISTRIBUTION

INEXACT MODEL OF (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEADTIME =0.10*D*SQRT(L)

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED=0.005*LEADTIME DEMAND

	DEMAND	HC=0.01	HC=0.10	HC=1.0
	10.	0.147	0.479	1.536
	100.	0.515	1.933	7.540
S= 0.1	1000.	2.226	11.198	60.612
	10000.	13.694	93.222	585.271
	100000.	114.522	898.278	5830.659
	1000000.	1089.368	8949.132	58282.467
	10.	0.450	1.425	4.512
	100.	1.466	4.789	15.364
S= 1.0	1000.	5.153	19.331	75.404
	10000.	22.261	111.985	606.105
	100000.	136.945	928.826	5852.728
	1000000.	1146.649	8982.404	58309.269
	10.	1.415	4.476	14.155
	100.	4.504	14.251	45.118
S=10.0	1000.	14.663	47.893	153.638
	10000.	51.518	193.310	754.059
	100000.	222.633	1119.740	6061.090
	1000000.	1369.479	9287.249	58527.541

DEMAND FOLLOWS A NORMAL DISTRIBUTION

EXACT MODEL OF (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEADTIME =1.00*D*SQRT(L)

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED=0.005*LEADTIME DEMAND

	DEMAND	HC=0.01	HC=0.10	HC=1.0
	10.	0.202	0.887	3.534
	100.	1.180	6.964	31.034
S= 0.1	1000.	9.703	65.492	303.320
	10000.	92.330	647.221	3024.726
	100000.	914.543	6462.045	30249.147
	1000000.	9132.750	64607.731	302565.454
	10.	0.493	1.671	5.676
	100.	2.015	8.872	35.336
S= 1.0	1000.	11.796	69.633	310.334
	10000.	97.021	654.889	3033.218
	100000.	923.468	6471.938	30247.569
	1000000.	9144.555	64622.455	302384.650
	10.	1.440	4.561	14.584
	100.	4.930	16.706	56.763
S=10.0	1000.	20.145	88.720	353.366
	10000.	117.960	696.377	3103.346
	100000.	970.221	6548.832	30332.850
	1000000.	9233.777	64721.656	302473.057

DEMAND FOLLOWS A NORMAL DISTRIBUTION

INEXACT MODEL OF (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEADTIME =1.00*D*SQRT(L)

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED=0.005*LEADTIME DEMAND

	DEMAND	HC=0.01	HC=0.10	HC=1.0
	10.	0.203	0.889	3.815
	100.	1.195	7.087	35.720
S= 0.1	1000.	9.919	68.059	354.657
	10000.	95.898	677.438	3544.136
	100000.	1007.365	6771.264	35438.070
	1000000.	9549.023	67714.457	354427.656
	10.	0.493	1.672	5.705
	100.	2.030	8.586	38.152
S= 1.0	1000.	11.936	70.867	357.233
	10000.	99.197	680.633	3546.644
	100000.	959.251	6774.380	35444.766
	1000000.	9552.872	67712.699	362602.920
	10.	1.440	4.561	14.590
	100.	4.930	16.717	57.048
S=10.0	1000.	20.296	88.857	381.519
	10000.	119.359	708.660	3583.341
	100000.	991.994	6806.346	35465.952
	1000000.	9589.904	67746.401	354525.049

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF EXACT OVER INEXACT MODEL OF (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEADTIME =0.10*D*SQRT(L)

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED=0.005*LEADTIME DEMAND

	DEMAND	HC=0.01	HC=0.10	HC=1.0	TOTAL SAVINGS	PER.SAVINGS
	10.	0.000	0.000	0.000	0.000	0.000
	100.	0.000	0.001	0.014	0.015	0.150
S= 0.1	1000.	0.018	0.013	1.191	1.222	1.678
	10000.	0.200	0.773	18.313	19.286	2.866
	100000.	4.183	9.520	193.837	207.540	3.128
	1000000.	79.568	105.351	1947.734	2132.653	3.222
	10.	0.000	0.000	0.000	0.000	0.000
	100.	0.000	0.000	0.002	0.002	0.009
S= 1.0	1000.	0.001	0.015	0.146	0.162	0.162
	10000.	0.183	0.137	11.898	12.218	1.678
	100000.	2.002	4.343	183.057	189.402	2.815
	1000000.	43.533	95.018	1940.653	2079.204	3.133
	10.	0.000	0.000	0.000	0.000	0.000
	100.	0.000	0.000	0.000	0.000	0.000
S=10.0	1000.	0.000	0.001	0.016	0.017	0.008
	10000.	0.000	0.147	1.476	1.623	0.163
	100000.	1.852	3.221	119.011	122.084	1.677
	1000000.	19.962	42.150	1832.051	1894.163	2.815
	SAVINGS	151.502	258.690	6249.399	6659.591	0.218
PER.	SAVINGS	3.744	0.851	3.308	0.218	

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF EXACT OVER INEXACT MODEL OF (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND OVER LEADTIME =1.00*D*SQRT(L)

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED= 0.005*LEADTIME DEMAND

	DEMAND	HC=0.01	HC=0.10	HC=1.0	TOTAL SAVINGS	PER.SAVINGS
	10.	0.001	0.002	0.281	0.284	6.143
	100.	0.015	0.123	4.686	4.824	12.313
S= 0.1	1000.	0.216	2.567	51.337	54.120	14.298
	10000.	3.568	30.217	519.410	553.195	14.696
	100000.	92.822	309.219	5188.923	5590.964	14.859
	1000000.	416.273	3196.726	51862.232	55385.201	14.718
	10.	0.000	0.001	0.029	0.030	0.383
	100.	0.015	0.014	2.816	2.845	6.155
S= 1.0	1000.	0.140	1.234	46.899	48.273	12.322
	10000.	2.176	25.744	513.426	541.346	14.392
	100000.	35.783	302.442	5197.197	5535.422	14.705
	1000000.	408.317	3090.244	60218.270	63716.831	16.939
	10.	0.000	0.000	0.006	0.006	0.029
	100.	0.000	0.011	0.285	0.296	0.378
S=10.0	1000.	0.151	0.137	28.153	28.441	6.153
	10000.	1.399	12.283	479.995	493.677	12.601
	100000.	21.773	257.514	5133.102	5412.389	14.299
	1000000.	356.127	3024.745	52051.992	55432.864	14.726
	SAVINGS	1338.776	10163.223	181299.009	192801.008	1.180
	PER. SAVINGS	4.364	4.712	17.977	1.180	

CHAPTER 3

CONSTANT LEAD TIMES AND LINEAR BACKORDER COSTS

MODEL (Q,R) :

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	BC=0.01	BC=0.1	BC=1.0	BC=10.0	BC=100.0
D= 10.0					
0.01	0.049	0.113	0.337	1.041	3.224
0.10	0.113	0.152	0.352	1.045	3.226
1.00	0.337	0.352	0.472	1.090	3.240
10.00	1.041	1.045	1.090	1.462	3.379
100.00	3.224	3.226	3.240	3.379	4.532
1000.00	9.995	9.995	10.000	10.044	10.474
D= 1000.0					
0.01	3.141	7.259	21.577	66.596	206.356
0.10	7.259	9.737	22.501	66.889	206.447
1.00	21.577	22.501	30.185	69.755	207.357
10.00	66.596	66.889	69.755	90.573	216.239
100.00	206.356	206.447	207.357	216.239	290.075
1000.00	639.675	639.704	639.987	642.808	670.342
D=100000.0					
0.01	201.022	464.547	1380.943	4262.137	13206.788
0.10	464.547	623.168	1440.095	4280.924	13212.626
1.00	1380.943	1440.095	1931.822	4464.296	13270.865
10.00	4262.137	4280.924	4464.296	5988.648	18839.316
100.00	13206.788	13212.626	13270.865	13839.316	18564.808
1000.00	40939.232	40941.042	40959.141	41139.680	42901.881

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.395	0.215	0.620	1.852	5.554
0.10	0.215	0.286	0.646	1.860	5.557
1.00	0.620	0.646	0.859	1.937	5.580
10.00	1.852	1.860	1.937	2.577	5.812
100.00	5.554	5.557	5.580	5.812	7.731
1000.00	16.662	16.662	16.670	16.741	17.437
D= 1000.0					
0.01	6.108	13.777	39.682	118.540	355.467
0.10	13.777	18.325	41.332	119.047	355.619
1.00	39.682	41.332	54.975	123.996	357.141
10.00	118.540	119.047	123.996	164.924	371.987
100.00	355.467	355.619	357.141	371.987	494.773
1000.00	1066.354	1066.400	1066.857	1071.423	1115.960
D=100000.0					
0.01	390.932	881.746	2539.670	7586.542	22749.860
0.10	881.746	1172.795	2645.238	7619.010	22759.625
1.00	2539.670	2645.238	3518.385	7935.715	22857.031
10.00	7586.542	7619.010	7935.715	10595.154	23807.146
100.00	22749.860	22759.625	22857.031	23807.146	31665.461
1000.00	68246.649	68249.579	68278.876	68571.094	71421.438

MODEL (Q,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.097	0.232	0.676	2.020	6.059
0.10	0.205	0.291	0.696	2.027	6.061
1.00	0.581	0.614	0.873	2.088	6.080
10.00	1.733	1.744	1.842	2.620	6.264
100.00	5.197	5.200	5.231	5.527	7.859
1000.00	15.591	15.592	15.621	15.693	16.582
D= 1000.0					
0.01	6.209	14.849	43.233	129.296	387.768
0.10	13.102	18.628	44.547	129.698	387.889
1.00	37.198	39.305	55.885	133.641	389.093
10.00	110.939	111.593	117.916	167.654	400.922
100.00	332.621	332.818	334.780	353.749	502.961
1000.00	997.805	997.864	998.454	1004.341	1061.240
D=100000.0					
0.01	397.401	950.334	2766.887	8274.961	24817.160
0.10	838.517	1192.204	2851.003	8300.661	24824.884
1.00	2380.660	2515.550	3576.611	8553.010	24901.982
10.00	7100.120	7141.980	7546.650	10729.832	25659.031
100.00	21287.758	21300.361	21425.941	22639.950	32189.496
1000.00	63859.493	63863.275	63901.083	64277.829	67919.850

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.
D= 10.0					
0.01	0.088	0.204	0.599	1.761	5.282
0.10	0.195	0.265	0.611	1.768	5.284
1.00	0.558	0.584	0.795	1.834	5.304
10.00	1.665	1.673	1.751	2.385	5.501
100.00	4.993	4.996	5.029	5.254	7.154
1000.00	14.979	14.980	14.987	15.059	15.761
D= 1000.0					
0.01	5.653	13.039	37.717	112.722	338.037
0.10	12.453	16.958	39.116	113.151	338.166
1.00	35.696	37.358	50.873	117.347	339.453
10.00	106.574	107.087	112.075	152.619	352.040
100.00	319.568	319.722	321.261	336.226	457.857
1000.00	958.658	958.705	959.167	963.784	1008.677
D=100000.0					
0.01	361.764	834.465	2413.889	7214.213	21634.385
0.10	796.979	1085.291	2503.394	7241.668	21642.640
1.00	2284.524	2390.938	3255.874	7510.183	21725.004
10.00	6820.746	6853.573	7172.815	9767.622	22530.549
100.00	20452.360	20462.239	20560.718	21518.446	29302.865
1000.00	61354.124	61357.088	61386.718	61682.155	64555.337

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.007	0.012	0.031	0.091	0.272
0.10	0.021	0.021	0.035	0.092	0.273
1.00	0.062	0.062	0.064	0.104	0.276
10.00	0.187	0.187	0.186	0.192	0.312
100.00	0.561	0.561	0.561	0.559	0.577
1000.00	1.683	1.683	1.683	1.682	1.676
D= 1000.0					
0.01	0.456	0.739	1.965	5.818	17.429
0.10	1.324	1.367	2.216	5.896	17.453
1.00	3.987	3.973	4.102	6.649	17.688
10.00	11.966	11.960	11.920	12.305	19.947
100.00	35.898	35.897	35.880	35.761	36.916
1000.00	107.696	107.695	107.690	107.640	107.283
D=100000.0					
0.01	29.168	47.281	125.781	372.328	1115.475
0.10	84.767	87.504	141.844	377.342	1116.985
1.00	255.146	254.300	262.511	425.532	1132.027
10.00	765.795	765.438	762.900	787.532	1276.597
100.00	2297.497	2297.386	2296.513	2288.700	2362.596
1000.00	6892.524	6892.491	6892.159	6888.938	6866.100

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.009	0.028	0.086	0.259	0.777
0.10	0.010	0.026	0.085	0.259	0.777
1.00	0.023	0.039	0.078	0.255	0.776
10.00	0.068	0.079	0.091	0.235	0.764
100.00	0.204	0.205	0.211	0.274	0.705
1000.00	0.612	0.612	0.614	0.634	0.821
D= 1000.0					
0.01	0.557	1.810	5.516	16.574	49.731
0.10	0.649	1.671	5.431	16.547	49.723
1.00	1.502	1.947	5.012	16.294	49.640
10.00	4.365	4.506	5.841	15.035	48.883
100.00	13.053	13.096	13.519	17.524	45.104
1000.00	39.146	39.159	39.287	40.557	52.571
D=100000.0					
0.01	35.637	115.870	352.998	1060.748	3182.775
0.10	41.537	106.912	347.609	1058.993	3182.244
1.00	96.136	124.612	320.737	1042.827	3176.978
10.00	279.374	288.408	373.835	962.210	3128.482
100.00	835.396	838.122	865.223	1121.504	2886.631
1000.00	2505.369	2506.187	2514.365	2595.668	3364.512

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.046	0.102	0.280	0.812	2.330
0.10	0.102	0.134	0.294	0.815	2.331
1.00	0.283	0.294	0.387	0.848	2.340
10.00	0.812	0.815	0.848	1.115	2.434
100.00	2.330	2.331	2.340	2.434	3.198
1000.00	6.667	6.667	6.670	6.697	6.963
D= 1000.0					
0.01	2.967	6.519	18.105	51.944	149.111
0.10	6.519	8.588	18.830	52.158	149.172
1.00	18.105	18.830	24.790	54.241	149.784
10.00	51.944	52.158	54.241	71.352	155.747
100.00	149.111	149.172	149.784	155.747	204.698
1000.00	426.678	426.696	426.871	428.616	445.618
D=100000.0					
0.01	189.910	417.199	1158.727	3324.404	9543.072
0.10	417.199	549.626	1205.143	3338.086	9546.999
1.00	1158.727	1205.143	1586.563	3471.420	9586.167
10.00	3324.404	3338.086	3471.420	4566.506	9967.829
100.00	9543.072	9546.999	9586.167	9967.829	13100.653
1000.00	27307.417	27308.537	27319.735	27431.414	28519.557

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (Q0,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.002	0.017	0.055	0.168	0.535
0.10	-0.011	0.005	0.050	0.166	0.504
1.00	-0.039	-0.032	0.014	0.151	0.499
10.00	-0.119	-0.116	-0.095	0.043	0.452
100.00	-0.357	-0.356	-0.349	-0.285	0.128
1000.00	-1.071	-1.071	-1.069	-1.048	-0.855
D= 1000.0					
0.01	0.101	1.072	3.550	10.757	32.302
0.10	-0.675	0.303	3.215	10.651	32.270
1.00	-2.485	-2.026	0.910	9.645	31.952
10.00	-7.600	-7.454	-6.079	2.729	28.936
100.00	-22.845	-22.801	-22.361	-18.237	8.188
1000.00	-68.549	-68.536	-68.403	-67.082	-54.712
D=100000.0					
0.01	6.470	68.588	227.217	686.420	2067.300
0.10	-43.229	19.409	205.765	631.650	2065.259
1.00	-159.010	-129.688	58.226	617.295	2044.951
10.00	-486.421	-477.030	-389.065	174.678	1851.885
100.00	-1462.101	-1459.264	-1431.090	-1167.196	524.035
1000.00	-4387.156	-4386.304	-4377.793	-4293.271	-3501.586

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.048	0.119	0.338	0.980	2.835
0.10	0.091	0.139	0.344	0.981	2.835
1.00	0.244	0.263	0.402	0.998	2.840
10.00	0.693	0.699	0.753	1.158	2.886
100.00	1.973	1.975	1.991	2.149	3.326
1000.00	5.596	5.596	5.601	5.649	6.108
D= 1000.0					
0.01	3.068	7.590	21.655	62.700	181.412
0.10	5.843	8.891	22.045	62.808	181.442
1.00	15.621	16.804	25.730	63.886	181.736
10.00	44.343	44.704	48.162	74.081	184.623
100.00	126.265	126.371	127.423	137.510	212.886
1000.00	358.129	358.160	358.468	361.533	390.906
D=100000.0					
0.01	196.379	485.788	1365.944	4012.824	11610.372
0.10	373.970	569.035	1410.908	4019.737	11612.258
1.00	999.717	1075.455	1644.789	4088.715	11631.118
10.00	2837.983	2861.056	3082.354	4741.184	11819.715
100.00	8080.971	8087.735	8155.077	8800.633	13624.687
1000.00	22920.261	22922.233	22941.942	23138.143	25017.969

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.196	0.432	1.205	3.479	10.084
0.10	0.432	0.570	1.253	3.493	10.088
1.00	1.205	1.253	1.652	3.634	10.130
10.00	3.479	3.493	3.634	4.791	10.538
100.00	10.084	10.088	10.130	10.538	13.893
1000.00	29.243	29.244	29.256	29.377	30.550
D= 1000.0					
0.01	11.346	24.957	69.574	200.930	582.455
0.10	24.957	32.904	72.375	201.763	582.697
1.00	69.574	72.375	95.421	209.886	585.114
10.00	200.930	201.763	209.886	276.720	608.671
100.00	582.455	582.697	585.114	608.671	802.487
1000.00	1689.049	1689.120	1689.822	1696.831	1765.144
D=100000.0					
0.01	655.350	1441.503	4018.572	11605.725	33642.606
0.10	1441.503	1900.515	4180.358	11653.859	33656.602
1.00	4018.572	4180.358	5511.492	12123.037	33796.190
10.00	11605.725	11653.859	12123.037	15983.328	35156.808
100.00	33642.606	33656.602	33796.190	35156.808	46351.652
1000.00	97559.497	97563.557	97604.145	98008.951	101954.745

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.340	0.730	1.967	5.485	15.351
0.10	0.730	0.953	2.043	5.507	15.358
1.00	1.967	2.043	2.669	5.721	15.419
10.00	5.485	5.507	5.721	7.474	16.019
100.00	15.351	15.358	15.419	16.019	20.928
1000.00	42.982	42.984	43.001	43.174	44.853
D= 1000.0					
0.01	19.667	42.149	113.598	316.805	886.697
0.10	42.149	55.067	118.018	318.076	887.054
1.00	113.598	118.018	154.187	330.451	890.611
10.00	316.805	318.076	330.451	431.724	925.263
100.00	886.697	887.054	890.611	925.263	1208.826
1000.00	2482.652	2482.752	2483.751	2493.712	2590.735
D=100000.0					
0.01	1135.949	2434.547	6561.444	18298.656	51215.632
0.10	2434.547	3180.658	6816.731	18372.042	51236.236
1.00	6561.444	6816.731	8905.843	19086.846	51441.717
10.00	18298.656	18372.042	19086.846	24936.361	53443.168
100.00	51215.632	51236.236	51441.717	53443.168	69821.809
1000.00	143397.999	143403.770	143461.462	144036.808	149640.869

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (QQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.346	0.783	2.131	5.959	16.655
0.10	0.696	0.968	2.192	5.967	16.660
1.00	1.851	1.949	2.711	6.137	16.719
10.00	5.155	5.183	5.468	7.590	17.194
100.00	14.425	14.433	14.513	15.282	21.253
1000.00	40.387	40.390	40.412	40.635	42.789
D= 1000.0					
0.01	19.972	45.215	123.098	343.673	962.003
0.10	40.210	55.920	126.601	344.673	962.284
1.00	106.919	112.587	156.577	354.484	965.084
10.00	297.729	299.374	315.244	438.416	992.556
100.00	833.179	833.641	838.247	882.682	1227.565
1000.00	2332.771	2332.901	2334.195	2347.090	2471.509
D=100000.0					
0.01	1153.559	2611.608	7110.112	19850.542	55565.308
0.10	2322.508	3229.964	7312.502	19908.314	55581.517
1.00	6175.653	6503.023	9043.900	20475.005	55743.278
10.00	17196.827	17291.829	18208.465	25322.919	57330.014
100.00	48124.414	48151.114	48417.121	50983.701	70904.173
1000.00	134740.879	134748.358	134823.120	135567.938	142754.364

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.
D= 10.0					
0.01	0.317	0.693	1.875	5.232	14.615
0.10	0.664	0.887	1.940	5.251	14.650
1.00	1.781	1.859	2.482	5.433	14.732
10.00	4.964	4.987	5.204	6.951	15.213
100.00	13.894	13.900	13.963	14.571	19.161
1000.00	38.900	38.902	38.920	39.095	40.800
D= 1000.0					
0.01	18.288	40.028	108.317	302.211	845.887
0.10	38.340	51.207	112.077	303.288	846.190
1.00	102.868	107.352	143.379	313.816	847.207
10.00	286.736	288.029	300.585	401.463	878.684
100.00	802.498	802.861	806.481	841.639	1124.095
1000.00	2246.891	2246.993	2248.010	2258.148	2356.586
D=100000.0					
0.01	1056.326	2311.989	6256.404	17455.681	48858.435
0.10	2214.514	2957.714	6473.568	17517.932	48875.907
1.00	5941.629	6200.638	8281.598	18125.991	49050.210
10.00	16561.869	16636.560	17361.787	23188.474	50752.774
100.00	46352.256	46373.233	46582.368	48613.003	64927.728
1000.00	129780.441	129786.316	129845.054	130430.630	136116.410

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.024	0.037	0.091	0.253	0.707
0.10	0.066	0.067	0.103	0.256	0.707
1.00	0.186	0.185	0.187	0.288	0.717
10.00	0.521	0.520	0.517	0.524	0.696
100.00	1.458	1.458	1.457	1.448	1.467
1000.00	4.082	4.082	4.081	4.078	4.054
D= 1000.0					
0.01	1.379	2.122	5.281	14.594	40.810
0.10	3.809	3.860	5.941	14.787	40.864
1.00	10.731	10.666	10.808	16.635	41.404
10.00	30.069	30.046	29.866	30.261	46.579
100.00	84.200	84.193	84.130	83.625	84.731
1000.00	235.761	235.759	235.741	235.564	234.149
D=100000.0					
0.01	79.623	122.558	305.039	842.975	2357.197
0.10	220.033	222.945	343.162	854.110	2360.329
1.00	619.815	616.092	624.245	960.855	2391.507
10.00	1736.787	1735.482	1725.059	1747.886	2690.393
100.00	4863.376	4863.003	4859.349	4830.164	4894.082
1000.00	13617.559	13617.454	13616.408	13606.178	13524.459

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.029	0.090	0.256	0.719	2.010
0.10	0.032	0.082	0.251	0.716	2.010
1.00	0.070	0.091	0.228	0.704	2.006
10.00	0.190	0.196	0.254	0.640	1.971
100.00	0.531	0.533	0.550	0.711	1.791
1000.00	1.487	1.487	1.492	1.540	1.990
D= 1000.0					
0.01	1.683	5.187	14.780	41.462	116.116
0.10	1.870	4.713	14.524	41.385	116.094
1.00	4.052	5.235	13.198	40.669	115.877
10.00	10.993	11.345	14.659	36.954	113.872
100.00	30.681	30.760	31.765	41.044	103.470
1000.00	85.880	85.908	86.185	88.942	114.923
D=100000.0					
0.01	97.232	299.619	853.708	2394.860	6706.873
0.10	107.995	272.251	838.934	2390.082	6705.609
1.00	234.025	302.385	762.302	2349.014	6693.069
10.00	634.957	655.269	846.678	2134.445	6577.239
100.00	1772.158	1777.881	1834.753	2370.698	5976.445
1000.00	4960.439	4962.042	4978.067	5137.308	6637.954

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.141	0.298	0.762	2.006	5.267
0.10	0.298	0.384	0.790	2.014	5.269
1.00	0.762	0.790	1.017	2.087	5.289
10.00	2.006	2.014	2.087	2.684	5.481
100.00	5.267	5.269	5.289	5.481	7.035
1000.00	13.740	13.740	13.745	13.796	14.293
D= 1000.0					
0.01	8.321	17.193	44.025	115.875	304.242
0.10	17.193	22.163	45.644	116.312	304.357
1.00	44.025	45.644	58.766	120.565	305.497
10.00	115.875	116.312	120.565	155.004	316.592
100.00	304.242	304.357	305.497	316.592	406.339
1000.00	793.603	793.632	793.929	796.881	825.591
D=100000.0					
0.01	480.599	993.044	2542.872	6692.931	17573.026
0.10	993.044	1280.144	2636.373	6718.183	17579.635
1.00	2542.872	2636.373	3394.351	6963.808	17645.527
10.00	6692.931	6718.183	6963.808	8953.032	18286.359
100.00	17573.026	17579.635	17645.527	18286.359	23470.156
1000.00	45838.502	45840.213	45857.317	46027.857	47686.125

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (Q,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.005	0.053	0.164	0.465	1.304
0.10	-0.034	0.015	0.149	0.460	1.302
1.00	-0.116	-0.094	0.041	0.416	1.289
10.00	-0.330	-0.324	-0.263	0.116	1.145
100.00	-0.927	-0.925	-0.907	-0.737	0.124
1000.00	-2.595	-2.594	-2.589	-2.538	-2.064
D= 1000.0					
0.01	0.305	3.065	9.499	26.868	75.306
0.10	-1.940	0.854	8.583	26.598	75.230
1.00	-6.679	-5.431	2.309	24.033	74.473
10.00	-19.076	-18.702	-15.207	6.692	67.293
100.00	-53.518	-53.413	-52.365	-42.581	18.739
1000.00	-149.881	-149.851	-149.556	-146.622	-119.226
D=100000.0					
0.01	17.609	177.061	548.669	1551.886	4349.676
0.10	-112.038	49.306	495.771	1536.272	4345.280
1.00	-385.790	-313.707	138.057	1388.159	4301.561
10.00	-1101.829	-1080.213	-878.381	386.558	3886.946
100.00	-3091.219	-3085.122	-3024.596	-2459.466	1082.364
1000.00	-8657.120	-8655.412	-8638.342	-8468.870	-6886.505

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.149	0.351	0.927	2.471	6.571
0.10	0.264	0.398	0.939	2.474	6.572
1.00	0.647	0.696	1.059	2.503	6.578
10.00	1.676	1.690	1.824	2.799	6.646
100.00	4.341	4.345	4.382	4.744	7.359
1000.00	11.145	11.146	11.156	11.258	12.229
D= 1000.0					
0.01	8.625	20.258	53.524	142.743	379.548
0.10	15.253	23.017	54.227	142.910	379.586
1.00	37.346	40.212	61.157	144.598	379.970
10.00	96.799	97.610	105.357	161.697	383.885
100.00	250.724	250.944	253.132	274.011	425.078
1000.00	643.722	643.781	644.373	650.259	706.365
D=100000.0					
0.01	498.209	1170.105	3091.540	8244.817	21922.702
0.10	881.006	1329.450	3132.144	8254.455	21924.915
1.00	2157.081	2322.665	3532.407	8351.968	21947.088
10.00	5591.102	5637.970	6085.427	9339.591	22173.265
100.00	14481.808	14494.513	14620.931	15826.893	24552.521
1000.00	37181.382	37184.801	37218.975	37558.987	40799.617

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.957	1.941	4.871	12.618	32.794
0.10	1.941	2.488	5.047	12.665	32.806
1.00	4.871	5.047	6.468	13.121	32.928
10.00	12.618	12.665	13.121	16.816	34.116
100.00	32.794	32.806	32.928	34.116	43.722
1000.00	85.262	85.265	85.297	85.614	88.701
D= 1000.0					
0.01	48.230	97.848	245.551	636.065	1653.152
0.10	97.848	125.399	254.405	638.432	1653.769
1.00	245.551	254.405	326.037	661.452	1659.923
10.00	636.065	638.432	661.452	847.697	1719.775
100.00	1653.152	1653.769	1659.923	1719.775	2204.013
1000.00	4298.034	4298.194	4299.799	4315.800	4471.414
D=100000.0					
0.01	2431.294	4932.512	12378.212	32064.033	83335.374
0.10	4932.512	6321.363	12824.532	32183.352	83366.486
1.00	12378.212	12824.532	16435.544	33343.784	83676.715
10.00	32064.033	32183.352	33343.784	42732.416	86693.837
100.00	83335.374	83366.486	83676.715	86693.837	111104.280
1000.00	216663.880	216671.971	216752.864	217559.458	225403.977

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.674	3.300	7.974	19.863	49.639
0.10	3.300	4.186	8.249	19.934	49.657
1.00	7.974	8.249	10.465	20.623	49.834
10.00	19.863	19.934	20.623	26.161	51.556
100.00	49.639	49.657	49.834	51.556	65.404
1000.00	124.094	124.099	124.143	124.586	128.891
D= 1000.0					
0.01	84.403	166.333	401.945	1001.289	2502.326
0.10	166.333	211.008	415.832	1004.862	2503.222
1.00	401.945	415.832	527.519	1039.581	2512.154
10.00	1001.289	1004.862	1039.581	1318.799	2598.953
100.00	2502.326	2503.222	2512.154	2598.953	3296.996
1000.00	6255.591	6255.815	6258.055	6280.385	6497.382
D=100000.0					
0.01	4254.761	8384.846	20262.029	50474.965	126142.251
0.10	8384.846	10636.902	20962.114	50655.072	126187.412
1.00	20262.029	20962.114	26592.254	52405.266	126637.679
10.00	50474.965	50655.072	52405.266	66480.636	131013.214
100.00	126142.251	126187.412	126637.679	131013.214	166201.590
1000.00	315344.334	315355.627	315468.529	316594.198	327539.085

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (Q,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.697	3.512	8.564	21.355	93.374
0.10	3.164	4.244	8.781	21.411	93.388
1.00	7.555	7.910	10.609	21.952	93.526
10.00	18.795	18.887	19.776	26.522	94.880
100.00	46.964	46.987	47.218	49.439	66.305
1000.00	117.404	117.410	117.468	118.046	123.598
D= 1000.0					
0.01	85.567	177.057	431.722	1076.518	2690.596
0.10	159.503	213.916	442.642	1079.306	2691.295
1.00	380.843	398.758	534.791	1196.604	2698.264
10.00	947.452	952.108	996.896	1336.977	2766.510
100.00	2367.460	2368.629	2380.271	2492.239	3342.442
1000.00	5918.359	5918.651	5921.573	5950.677	6230.597
D=100000.0					
0.01	4313.408	8925.426	21763.118	54267.264	135632.951
0.10	8040.561	10783.519	22313.565	54407.794	135668.159
1.00	19198.312	20101.402	26958.798	55783.913	136019.486
10.00	47761.042	47995.780	50253.505	67396.994	139459.982
100.00	119343.679	119402.604	119989.450	125633.762	168492.486
1000.00	298344.460	298359.198	298506.510	299973.625	314084.405

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.569	3.151	7.643	19.046	47.601
0.10	3.033	3.924	7.878	19.107	47.616
1.00	7.300	7.582	9.809	19.696	47.767
10.00	18.176	18.249	18.955	24.523	49.240
100.00	45.422	45.440	45.622	47.388	61.308
1000.00	113.550	113.555	113.600	114.056	118.479
D= 1000.0					
0.01	79.117	158.860	385.272	960.133	2399.569
0.10	152.886	197.793	397.150	963.180	2400.333
1.00	367.973	382.214	494.483	992.876	2407.949
10.00	916.255	919.932	955.536	1236.208	2482.190
100.00	2289.716	2290.638	2299.829	2388.839	3090.519
1000.00	5724.060	5724.291	5726.596	5749.574	5972.097
D=100000.0					
0.01	3988.303	8008.142	19421.553	46400.305	120962.268
0.10	7706.968	9970.757	20020.355	48553.883	121000.764
1.00	18549.504	19267.419	24926.892	50050.868	121384.708
10.00	46188.433	46373.761	48168.547	62317.229	125127.221
100.00	115424.597	115471.083	115934.403	120421.367	155793.072
1000.00	288549.866	288561.491	288677.708	289836.007	301053.418

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.
D= 10.0					
0.01	0.105	0.148	0.331	0.816	2.038
0.10	0.267	0.262	0.371	0.827	2.041
1.00	0.674	0.667	0.655	0.927	2.067
10.00	1.687	1.685	1.667	1.639	2.316
100.00	4.218	4.217	4.212	4.168	4.096
1000.00	10.544	10.544	10.543	10.530	10.429
D= 1000.0					
0.01	5.286	7.473	16.673	41.156	102.757
0.10	13.447	13.215	18.682	41.682	102.889
1.00	33.972	33.618	33.096	46.705	104.205
10.00	85.033	84.930	84.046	82.591	116.762
100.00	212.610	212.583	212.324	210.114	206.477
1000.00	531.531	531.524	531.458	530.811	525.285
D=100000.0					
0.01	266.458	376.704	840.475	2074.659	5179.983
0.10	677.878	666.145	941.759	2101.189	5186.648
1.00	1712.524	1694.695	1665.363	2354.397	5252.971
10.00	4286.531	4281.311	4236.739	4169.407	5885.993
100.00	10717.654	10716.328	10703.276	10591.847	10408.518
1000.00	26794.468	26794.136	26790.820	26758.191	26479.617

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.128	0.361	0.921	2.309	5.773
0.10	0.131	0.320	0.902	2.304	5.772
1.00	0.255	0.328	0.800	2.256	5.759
10.00	0.619	0.638	0.820	1.999	5.640
100.00	1.542	1.547	1.596	2.051	4.997
1000.00	3.854	3.856	3.868	3.989	5.128
D= 1000.0					
0.01	6.449	16.196	46.450	116.385	291.027
0.10	6.618	16.123	45.491	116.126	290.962
1.00	12.871	16.544	40.308	113.728	290.315
10.00	31.196	32.177	41.363	100.769	284.320
100.00	77.744	77.991	80.441	103.400	251.923
1000.00	194.299	194.363	194.977	201.103	258.500
D=100000.0					
0.01	325.105	917.284	2341.564	5866.958	14670.683
0.10	333.593	812.762	2293.210	5853.911	14667.395
1.00	648.808	833.983	2031.906	5733.024	14634.778
10.00	1572.608	1622.019	2084.958	5079.765	14332.561
100.00	3919.083	3931.521	4055.947	5212.395	12699.414
1000.00	9794.595	9797.706	9828.802	10137.619	13030.987

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=1[illegible].0
D= 10.0					
0.01	0.718	1.359	3.102	7.245	16.845
0.10	1.359	1.698	3.202	7.269	16.851
1.00	3.102	3.202	3.997	7.501	16.906
10.00	7.245	7.269	7.501	9.345	17.441
100.00	16.845	16.851	16.906	17.441	21.682
1000.00	38.833	38.834	38.847	38.972	40.190
D= 1000.0					
0.01	36.173	68.485	156.394	365.224	849.174
0.10	68.485	85.609	161.428	366.430	849.453
1.00	156.394	161.428	201.482	378.129	852.231
10.00	365.224	366.430	378.129	471.101	879.178
100.00	849.174	849.453	852.231	879.178	1092.984
1000.00	1957.557	1957.621	1958.256	1964.585	2025.968
D=100000.0					
0.01	1823.467	3452.333	7883.816	18410.932	42806.877
0.10	3452.333	4315.539	8137.582	18471.720	42820.925
1.00	7883.816	8137.582	10156.710	19061.502	42960.964
10.00	18410.932	18471.720	19061.502	23748.220	44319.377
100.00	42806.877	42820.925	42960.964	44319.377	55097.310
1000.00	98680.454	98683.656	98715.665	99034.740	102129.058

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (Q,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.005	0.053	0.164	0.465	1.304
0.10	-0.034	0.015	0.149	0.460	1.302
1.00	-0.116	-0.094	0.041	0.416	1.289
10.00	-0.330	-0.324	-0.263	0.116	1.165
100.00	-0.927	-0.925	-0.907	-0.737	0.324
1000.00	-2.595	-2.594	-2.589	-2.538	-2.064
D= 1000.0					
0.01	0.305	3.065	9.499	26.868	75.306
0.10	-1.940	0.954	8.583	26.598	75.230
1.00	-6.679	-5.431	2.395	24.033	74.473
10.00	-19.076	-18.702	-15.207	6.692	67.293
100.00	-53.518	-53.413	-52.365	-42.581	18.739
1000.00	-149.881	-149.851	-149.556	-146.622	-119.226
D=100000.0					
0.01	17.609	177.061	548.669	1551.886	4349.676
0.10	-112.038	49.306	495.771	1536.272	4345.280
1.00	-385.790	-313.707	138.057	1388.159	4301.561
10.00	-1101.829	-1080.213	-878.381	386.558	3886.946
100.00	-3091.219	-3085.122	-3024.596	-2459.466	1082.364
1000.00	-8657.120	-8655.412	-8638.342	-8468.870	-6886.505

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R OVER (QQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.
D= 10.0					
0.01	0.741	1.571	3.693	8.737	20.580
0.10	1.223	1.756	3.734	8.746	20.582
1.00	2.684	2.864	4.141	8.831	20.598
10.00	6.177	6.223	6.654	9.706	20.764
100.00	14.170	14.181	14.299	15.324	22.583
1000.00	32.143	32.146	32.172	32.432	34.898
D= 1000.0					
0.01	37.336	79.209	186.172	440.453	1037.444
0.10	61.655	88.517	188.237	440.874	1037.526
1.00	135.293	144.354	208.753	445.152	1038.341
10.00	311.387	313.676	335.444	489.279	1046.736
100.00	714.309	714.861	720.348	772.464	1138.429
1000.00	1620.325	1620.457	1621.774	1634.877	1759.183
D=100000.0					
0.01	1882.114	3992.914	9384.905	22203.231	52297.577
0.10	3108.048	4462.156	9489.093	22224.442	52301.673
1.00	6820.100	7276.870	10523.253	22440.129	52342.771
10.00	15697.009	15812.428	16909.721	24664.579	52765.945
100.00	36008.305	36036.118	36312.736	38939.925	57388.205
1000.00	81680.581	81687.226	81753.646	82414.167	88680.428

CHAPTER 10

CONTINUOUS LEAD TIMES AND VARIABLE SUPPLY

MODEL (0,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.071	0.154	0.421	1.196	3.407
0.10	0.154	0.202	0.438	1.201	3.408
1.00	0.421	0.438	0.575	1.248	3.422
10.00	1.196	1.201	1.248	1.638	3.557
100.00	3.407	3.408	3.422	3.557	4.669
1000.00	9.708	9.709	9.713	9.752	10.138
D= 1000.0					
0.01	5.113	11.103	30.437	86.394	246.122
0.10	11.103	14.572	31.642	86.746	246.222
1.00	30.437	31.642	41.530	90.180	247.227
10.00	86.394	86.746	90.180	118.361	257.014
100.00	246.122	246.222	247.227	257.014	337.328
1000.00	701.416	701.447	701.734	704.597	732.491
D=100000.0					
0.01	369.412	802.159	2199.094	6241.954	17782.291
0.10	802.159	1052.823	2286.154	6267.418	17789.568
1.00	2199.094	2286.154	3000.545	6515.539	17862.141
10.00	6241.954	6267.418	6515.539	8551.554	18569.286
100.00	17782.291	17789.568	17862.141	18569.286	24371.929
1000.00	50677.455	50679.529	50700.268	50907.102	52922.466

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.138	0.292	0.775	2.122	5.834
0.10	0.292	0.380	0.804	2.131	5.836
1.00	0.775	0.804	1.046	2.212	5.859
10.00	2.122	2.131	2.212	2.876	6.083
100.00	5.834	5.836	5.859	6.083	7.910
1000.00	16.042	16.043	16.049	16.112	16.728
D= 1000.0					
0.01	9.993	21.133	55.976	153.330	421.491
0.10	21.133	27.480	58.115	153.934	421.657
1.00	55.976	58.115	75.571	159.816	423.319
10.00	153.330	153.934	159.816	207.821	439.495
100.00	421.491	421.657	423.319	439.495	571.506
1000.00	1159.053	1159.099	1159.557	1164.126	1208.611
D=100000.0					
0.01	721.985	1526.841	4044.267	11078.084	30452.695
0.10	1526.841	1985.459	4198.812	11121.733	30464.731
1.00	4044.267	4198.812	5460.012	11546.733	30584.767
10.00	11078.084	11121.733	11546.733	15015.032	31753.515
100.00	30452.695	30464.731	30584.767	31753.515	41201.339
1000.00	83741.599	83744.911	83778.012	84108.108	87322.167

MODEL (Q,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.140	0.313	0.838	2.299	6.320
0.10	0.279	0.386	0.862	2.305	6.322
1.00	0.730	0.768	1.062	2.370	6.340
10.00	1.997	2.007	2.112	2.920	6.517
100.00	5.488	5.491	5.520	5.808	8.031
1000.00	15.090	15.091	15.099	15.181	15.972
D= 1000.0					
0.01	10.145	22.642	60.572	166.097	456.635
0.10	20.177	27.899	62.265	166.572	456.766
1.00	52.741	55.486	76.722	171.220	458.072
10.00	144.254	145.037	152.567	210.985	470.880
100.00	396.482	396.699	398.852	419.615	580.210
1000.00	1090.267	1090.327	1090.921	1096.842	1153.042
D=10000.0					
0.01	732.980	1635.875	4376.204	12000.195	32991.905
0.10	1457.777	2015.694	4498.655	12034.208	33001.360
1.00	3810.516	4008.886	5543.159	12371.302	33095.723
10.00	10422.353	10478.920	11024.435	15243.688	34021.079
100.00	28645.855	28661.471	28817.030	30317.197	41920.143
1000.00	78771.807	78776.102	78819.044	79246.832	83372.202

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.129	0.278	0.739	2.026	5.570
0.10	0.267	0.354	0.765	2.033	5.572
1.00	0.703	0.733	0.974	2.103	5.591
10.00	1.924	1.933	2.015	2.678	5.782
100.00	5.289	5.291	5.315	5.542	7.365
1000.00	14.544	14.545	14.551	14.616	15.242
D= 1000.0					
0.01	9.304	20.087	53.418	146.387	402.423
0.10	19.255	25.587	55.239	146.900	402.565
1.00	50.776	52.950	70.363	151.908	403.975
10.00	139.019	139.635	145.613	193.500	417.748
100.00	382.133	382.303	383.907	400.437	532.124
1000.00	1050.819	1050.866	1051.333	1055.991	1101.202
D=100000.0					
0.01	672.233	1451.289	3859.464	10576.469	29075.075
0.10	1391.150	1848.640	3991.045	10613.526	29085.291
1.00	3668.597	3825.662	5083.760	10975.373	29187.197
10.00	10044.140	10088.642	10520.571	13980.339	30182.275
100.00	27609.108	27621.384	27743.767	28931.572	38445.932
1000.00	75921.670	75925.047	75958.907	76295.359	79561.022

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.010	0.014	0.035	0.096	0.264
0.10	0.026	0.026	0.040	0.097	0.264
1.00	0.072	0.071	0.072	0.109	0.268
10.00	0.198	0.198	0.197	0.198	0.301
100.00	0.545	0.545	0.544	0.541	0.545
1000.00	1.498	1.498	1.498	1.497	1.487
D= 1000.0					
0.01	0.689	1.046	2.558	6.943	19.367
0.10	1.878	1.894	2.876	7.034	19.093
1.00	5.200	5.165	5.208	7.908	19.344
10.00	14.311	14.299	14.293	14.321	21.747
100.00	39.358	39.354	39.322	39.059	39.383
1000.00	108.234	108.233	108.224	108.135	107.410
D=100000.0					
0.01	49.752	75.552	184.803	501.615	1377.619
0.10	135.691	136.819	207.767	508.207	1379.441
1.00	375.669	373.150	376.252	571.360	1397.569
10.00	1033.944	1033.091	1026.161	1034.693	1571.240
100.00	2843.587	2843.347	2841.000	2821.944	2845.407
1000.00	7819.929	7819.863	7819.204	7812.749	7760.345

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.012	0.035	0.099	0.273	0.750
0.10	0.013	0.032	0.097	0.272	0.750
1.00	0.027	0.035	0.099	0.267	0.749
10.00	0.072	0.075	0.097	0.242	0.735
100.00	0.199	0.199	0.204	0.265	0.666
1000.00	0.546	0.546	0.548	0.565	0.730
D= 1000.0					
0.01	0.841	2.555	7.153	19.710	54.212
0.10	0.922	2.312	7.026	19.672	54.202
1.00	1.964	2.536	6.358	19.321	54.097
10.00	5.235	5.402	6.974	17.486	53.132
100.00	14.349	14.396	14.855	19.178	48.086
1000.00	39.448	39.461	39.588	40.851	52.740
D=100000.0					
0.01	60.747	184.586	516.830	1424.025	3916.830
0.10	66.627	167.054	507.610	1421.282	3916.069
1.00	141.919	183.223	459.400	1395.929	3908.525
10.00	398.213	390.277	503.864	1263.349	3838.804
100.00	1036.747	1040.086	1073.263	1385.626	3474.211
1000.00	2850.136	2851.055	2860.237	2951.473	3810.470

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.068	0.139	0.353	0.926	2.427
0.10	0.139	0.179	0.366	0.930	2.428
1.00	0.353	0.366	0.471	0.964	2.437
10.00	0.926	0.930	0.964	1.238	2.526
100.00	2.427	2.428	2.437	2.526	3.241
1000.00	6.334	6.334	6.337	6.360	6.590
D= 1000.0					
0.01	4.880	10.030	25.539	66.936	175.369
0.10	10.030	12.908	26.473	67.188	175.435
1.00	25.539	26.473	34.041	69.636	176.092
10.00	66.936	67.188	69.636	89.460	182.481
100.00	175.369	175.435	176.092	182.481	234.179
1000.00	457.635	457.652	457.823	459.529	476.120
D=100000.0					
0.01	352.573	724.681	1845.173	4836.131	12670.404
0.10	724.681	932.636	1912.658	4854.315	12675.164
1.00	1845.173	1912.658	2459.467	5031.194	12722.626
10.00	4836.131	4854.315	5031.194	6463.478	13184.229
100.00	12670.404	12675.164	12722.626	13184.229	16919.410
1000.00	33064.145	33065.381	33077.743	33201.006	34399.701

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.002	0.021	0.064	0.177	0.486
0.10	-0.013	0.006	0.057	0.175	0.486
1.00	-0.045	-0.036	0.016	0.158	0.481
10.00	-0.126	-0.123	-0.100	0.044	0.434
100.00	-0.346	-0.345	-0.339	-0.275	0.129
1000.00	-0.952	-0.952	-0.950	-0.931	-0.757
D= 1000.0					
0.01	0.152	1.509	4.596	12.767	35.145
0.10	-0.956	0.418	4.150	12.638	35.109
1.00	-3.235	-2.629	1.151	11.413	34.754
10.00	-9.076	-8.897	-7.229	3.165	31.385
100.00	-25.008	-24.959	-24.467	-19.880	8.703
1000.00	-68.786	-68.772	-68.636	-67.284	-54.670
D=100000.0					
0.01	10.995	109.034	332.027	942.410	2539.210
0.10	-69.064	30.235	299.843	913.075	2536.629
1.00	-233.750	-189.926	83.148	824.569	2510.056
10.00	-655.731	-642.813	-522.297	228.656	2267.564
100.00	-1806.839	-1803.261	-1767.737	-1436.319	628.804
1000.00	-4969.793	-4968.808	-4958.967	-4861.276	-3949.675

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (QQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.070	0.160	0.417	1.103	2.914
0.10	0.126	0.184	0.424	1.105	2.914
1.00	0.309	0.330	0.487	1.122	2.918
10.00	0.801	0.807	0.864	1.282	2.960
100.00	2.061	2.083	2.099	2.251	3.362
1000.00	5.382	5.382	5.387	5.429	5.833
D= 1000.0					
0.01	5.032	11.539	30.134	79.703	210.514
0.10	9.074	13.327	30.623	79.825	210.544
1.00	22.303	23.844	35.192	81.049	210.845
10.00	57.860	58.291	62.407	92.625	213.866
100.00	150.361	150.476	151.625	162.601	242.882
1000.00	388.849	388.880	389.187	392.245	421.451
D=100000.0					
0.01	363.568	833.715	2177.200	5758.541	15209.614
0.10	655.617	962.871	2212.501	5767.390	15211.792
1.00	1611.422	1722.732	2542.614	5855.763	15233.582
10.00	4180.399	4211.502	4508.896	6692.134	15451.795
100.00	10863.564	10871.903	10954.889	11747.911	17548.214
1000.00	28094.352	28096.573	28118.776	28339.730	30449.826

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.286	0.589	1.505	3.973	10.525
0.10	0.589	0.758	1.560	3.988	10.529
1.00	1.505	1.560	2.010	4.135	10.569
10.00	3.973	3.988	4.135	5.326	10.958
100.00	10.525	10.529	10.569	10.958	14.113
1000.00	27.891	27.892	27.903	28.009	29.039
D= 1000.0					
0.01	18.777	38.634	98.748	260.693	690.573
0.10	38.634	49.758	102.381	261.682	690.836
1.00	98.748	102.381	131.859	271.309	693.458
10.00	260.693	261.682	271.309	349.426	718.969
100.00	690.573	690.836	693.458	718.969	925.978
1000.00	1829.948	1830.017	1830.714	1837.663	1905.268
D=100000.0					
0.01	1231.933	2534.794	6478.855	17104.046	45308.470
0.10	2534.794	3264.623	6717.204	17168.966	45325.723
1.00	6478.855	6717.204	8651.252	17800.591	45497.761
10.00	17104.046	17168.966	17800.591	22925.818	47171.567
100.00	45308.470	45325.723	45497.761	47171.567	60753.419
1000.00	120062.873	120067.446	120113.166	120569.066	125004.652

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.499	0.998	2.457	6.244	15.916
0.10	0.998	1.272	2.544	6.266	15.921
1.00	2.457	2.544	3.244	6.488	15.979
10.00	6.244	6.266	6.488	8.273	16.544
100.00	15.916	15.921	15.979	16.544	21.095
1000.00	40.583	40.585	40.599	40.747	42.186
D= 1000.0					
0.01	32.734	65.461	161.231	409.647	1044.217
0.10	65.461	83.471	166.925	411.140	1044.599
1.00	161.231	166.925	212.850	425.658	1048.407
10.00	409.647	411.140	425.658	542.767	1085.428
100.00	1044.217	1044.599	1048.407	1085.428	1384.057
1000.00	2662.656	2662.753	2663.727	2673.438	2767.841
D=100000.0					
0.01	2147.649	4294.874	10578.390	26876.916	68511.077
0.10	4294.874	5476.504	10951.928	26974.895	68536.135
1.00	10578.390	10951.928	13965.084	27927.415	68785.983
10.00	26876.916	26974.895	27927.415	35610.965	71214.909
100.00	68511.077	68536.135	68785.983	71214.909	90807.961
1000.00	174696.853	174703.245	174767.143	175404.257	181598.019

DEMAND FOLLOWS A NORMAL DISTPIBUTION

MODEL (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.506	1.063	2.644	6.723	17.140
0.10	0.956	1.290	2.712	6.741	17.144
1.00	2.326	2.438	3.290	6.915	17.190
10.00	5.901	5.931	6.216	8.389	17.634
100.00	15.040	15.047	15.123	15.850	21.392
1000.00	38.349	38.351	38.371	38.563	40.417
D= 1000.0					
0.01	33.195	69.775	173.444	441.114	1124.543
0.10	62.716	84.646	177.927	442.281	1124.842
1.00	152.589	159.926	215.848	453.713	1127.618
10.00	387.158	389.102	407.811	550.412	1156.968
100.00	986.756	987.253	992.211	1039.917	1403.550
1000.00	2516.100	2516.227	2517.496	2530.137	2651.788
D=100000.0					
0.01	2177.896	4577.946	11379.641	28941.516	73781.299
0.10	4114.794	5553.634	11673.763	29018.085	73800.865
1.00	10011.371	10492.725	14161.766	29768.095	73996.116
10.00	25401.447	25528.997	26756.459	36112.504	75908.641
100.00	64741.034	64773.691	65098.941	68228.947	92086.884
1000.00	165081.307	165089.638	165172.911	166002.300	173983.815

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (M,R,1)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.467	0.952	2.353	5.982	15.248
0.10	0.915	1.191	2.427	6.001	15.253
1.00	2.245	2.334	3.037	6.190	15.303
10.00	5.702	5.726	5.952	7.744	15.785
100.00	14.535	14.641	14.601	15.178	19.746
1000.00	37.064	37.065	37.080	37.232	38.705
D= 1000.0					
0.01	30.641	62.458	154.402	392.453	1000.430
0.10	60.059	78.134	159.267	393.725	1000.755
1.00	147.323	153.150	199.241	406.131	1003.999
10.00	374.140	375.673	390.533	508.065	1035.634
100.00	953.663	954.056	957.967	995.860	1295.567
1000.00	2431.742	2431.842	2432.842	2442.815	2539.442
D=100000.0					
0.01	2010.338	4097.846	10130.316	25748.834	65638.186
0.10	3940.466	5126.363	10449.508	25832.206	65659.527
1.00	9665.852	10048.189	13072.225	26646.244	65872.379
10.00	24547.296	24647.923	25622.881	33334.174	67947.922
100.00	62569.860	62595.605	62852.204	65338.347	85002.145
1000.00	159546.576	159553.143	159618.792	160273.121	166612.784

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.032	0.046	0.104	0.262	0.667
0.10	0.082	0.081	0.117	0.265	0.668
1.00	0.212	0.210	0.207	0.298	0.677
10.00	0.541	0.541	0.535	0.529	0.759
100.00	1.380	1.380	1.378	1.365	1.349
1000.00	3.519	3.519	3.519	3.515	3.481
D= 1000.0					
0.01	2.093	3.003	6.829	17.194	43.787
0.10	5.402	5.337	7.658	17.415	43.844
1.00	13.909	13.774	13.609	19.527	44.408
10.00	35.507	35.467	35.125	34.702	49.794
100.00	90.554	90.543	90.440	89.568	88.490
1000.00	230.914	230.911	230.885	230.622	228.399
D=100000.0					
0.01	137.310	197.027	448.974	1128.081	2872.890
0.10	354.407	350.141	502.420	1142.590	2876.608
1.00	912.538	903.739	802.859	1281.171	2913.604
10.00	2329.620	2326.972	2304.534	2276.791	3266.997
100.00	5941.216	5940.530	5938.779	5876.563	5605.817
1000.00	15150.277	15150.102	15148.351	15131.137	14985.235

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.039	0.112	0.290	0.742	1.892
0.10	0.040	0.099	0.284	0.740	1.891
1.00	0.080	0.103	0.253	0.725	1.887
10.00	0.198	0.205	0.263	0.645	1.849
100.00	0.504	0.506	0.522	0.672	1.646
1000.00	1.286	1.286	1.290	1.331	1.712
D= 1000.0					
0.01	2.554	7.317	19.042	48.662	124.114
0.10	2.657	6.512	18.660	48.556	124.087
1.00	5.266	6.775	16.606	47.582	123.819
10.00	13.019	13.429	17.277	42.346	121.334
100.00	33.092	33.197	34.244	44.057	107.983
1000.00	84.358	84.385	84.654	87.322	112.346
D=100000.0					
0.01	167.557	480.100	1249.325	3192.682	8143.112
0.10	174.328	427.271	1224.255	3185.779	8141.338
1.00	345.519	444.537	1089.541	3121.851	8123.737
10.00	854.151	881.073	1133.569	2778.329	7960.719
100.00	2171.174	2178.086	2246.737	2890.600	7084.740
1000.00	5534.731	5536.494	5554.120	5729.180	7371.031

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.213	0.409	0.952	2.270	5.390
0.10	0.409	0.514	0.984	2.278	5.392
1.00	0.952	0.984	1.234	2.353	5.410
10.00	2.270	2.278	2.353	2.947	5.585
100.00	5.390	5.392	5.410	5.585	6.982
1000.00	12.692	12.692	12.696	12.739	13.147
D= 1000.0					
0.01	13.957	26.826	62.483	148.954	353.644
0.10	26.826	33.713	64.544	149.458	353.763
1.00	62.483	64.544	80.901	154.349	354.949
10.00	148.954	149.458	154.349	193.342	366.459
100.00	353.644	353.763	354.949	366.459	458.079
1000.00	832.708	832.736	833.013	835.775	862.572
D=100000.0					
0.01	915.715	1760.080	4099.535	9772.869	23202.606
0.10	1760.080	2211.880	4234.723	9805.929	23210.412
1.00	4099.535	4234.723	5313.832	10126.824	23288.222
10.00	9772.869	9805.929	10126.824	12685.147	24043.343
100.00	23202.606	23210.412	23288.222	24043.343	30054.542
1000.00	54633.980	54635.799	54653.977	54835.191	56593.367

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10.0

HOLDING COST = 0.10

BACKORDER COST PER SQUARE TIME BACKOPDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.007	0.066	0.186	0.480	1.224
0.10	=0.042	0.018	0.168	0.475	1.223
1.00	=0.132	-0.107	0.046	0.428	1.210
10.00	=0.343	-0.336	-0.272	0.117	1.000
100.00	=0.876	-0.874	-0.857	-0.694	0.297
1000.00	=2.234	-2.233	-2.229	-2.184	-1.769
D= 1000.0					
0.01	0.461	4.314	12.212	31.468	80.327
0.10	=2.745	1.176	11.002	31.141	80.243
1.00	=8.642	-6.999	2.998	28.055	79.411
10.00	-22.488	-22.038	-17.847	7.644	71.540
100.00	-57.461	-57.346	-56.196	-45.511	19.493
1000.00	-146.556	-146.527	-146.231	-143.301	=116.053
D=100000.0					
0.01	30.247	283.073	801.251	2064.600	5270.222
0.10	-180.079	77.130	721.835	2043.189	5264.701
1.00	-567.019	-459.202	196.682	1840.679	5210.133
10.00	-1475.468	=1445.899	=1170.966	501.538	4693.732
100.00	-3770.042	=3762.444	-3687.042	-2985.963	1278.923
1000.00	-9615.547	=9613.607	-9594.232	-9401.957	-7614.205

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (0,R) OVER (QQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.220	0.475	1.138	2.750	6.614
0.10	0.367	0.532	1.151	2.753	6.615
1.00	0.821	0.877	1.280	2.780	6.620
10.00	1.928	1.942	2.080	3.063	6.676
100.00	4.514	4.518	4.553	4.892	7.279
1000.00	10.458	10.459	10.468	10.554	11.378
D= 1000.0					
0.01	14.418	31.141	74.696	180.422	433.971
0.10	24.082	34.888	75.546	180.599	434.006
1.00	53.841	57.545	83.989	182.404	434.360
10.00	126.465	127.420	136.501	200.986	437.998
100.00	296.183	296.418	298.753	320.948	477.571
1000.00	686.152	686.209	686.782	692.474	746.520
D=100000.0					
0.01	945.962	2043.152	4900.786	11837.469	28472.828
0.10	1580.000	2289.010	4956.558	11849.118	28475.142
1.00	3532.516	3775.521	5510.514	11967.503	28498.355
10.00	8297.401	8360.030	8955.858	13186.685	28737.075
100.00	19432.564	19447.968	19601.180	21057.380	31333.465
1000.00	45018.434	45022.191	45059.745	45433.234	48979.162

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=10
D= 10.0					
0.01	1.429	2.673	6.086	14.255	33.4
0.10	2.673	3.337	6.282	14.303	33.4
1.00	6.086	6.282	7.842	14.763	33.6
10.00	14.255	14.303	14.763	18.429	34.6
100.00	33.488	33.499	33.611	34.693	43.3
1000.00	78.695	78.698	78.724	78.986	81.5
D= 1000.0					
0.01	82.023	154.405	351.538	823.374	1934.2
0.10	154.405	192.754	362.851	826.114	1934.9
1.00	351.538	362.851	452.972	852.699	1941.3
10.00	823.374	826.114	852.699	1964.483	2003.8
100.00	1934.284	1934.930	1941.367	2003.843	2501.5
1000.00	4545.416	4545.568	4547.086	4562.213	4709.0
D=100000.0					
0.01	4737.645	8918.407	20304.822	47558.110	111724.2
0.10	8918.407	11133.465	20958.257	47716.331	111761.5
1.00	20304.822	20958.257	26163.643	49251.903	112133.3
10.00	47558.110	47716.331	49251.903	61484.561	115741.9
100.00	111724.262	111761.560	112133.378	115741.972	144488.7
1000.00	262543.249	262552.016	262639.665	263513.438	271993.6

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	2.503	4.563	9.962	22.345	50.260
0.10	4.563	5.632	10.266	22.415	50.276
1.00	9.962	10.266	12.672	23.099	50.434
10.00	22.345	22.415	23.099	28.513	51.974
100.00	50.260	50.276	50.434	51.974	64.154
1000.00	113.081	113.084	113.120	113.477	116.941
D= 1000.0					
0.01	144.584	263.550	575.425	1290.632	2903.003
0.10	263.550	325.313	592.987	1294.707	2903.922
1.00	575.425	592.987	731.955	1334.220	2913.091
10.00	1290.632	1294.707	1334.220	1646.900	3001.995
100.00	2903.003	2903.922	2913.091	3001.995	3705.524
1000.00	6531.549	6531.756	6533.825	6554.454	6754.488
D=100000.0					
0.01	8351.159	15222.624	33236.568	74546.912	167677.425
0.10	15222.624	18790.107	34250.905	74782.279	167730.552
1.00	33236.568	34250.905	42277.740	77064.535	168260.127
10.00	74546.912	74782.279	77064.535	95124.916	173395.204
100.00	167677.425	167730.552	168260.127	173395.204	214031.060
1000.00	377262.248	377274.206	377393.741	378565.287	390139.209

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (NO,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	2.534	4.822	10.613	23.824	53.502
0.10	4.397	5.701	10.850	23.879	53.605
1.00	9.498	9.892	12.827	24.413	53.727
10.00	21.278	21.371	22.258	28.860	54.928
100.00	47.855	47.876	48.084	50.080	64.936
1000.00	107.669	107.673	107.720	108.189	112.681
D= 1000.0					
0.01	146.346	278.533	612.907	1376.090	3095.490
0.10	253.949	329.279	626.699	1379.243	3096.201
1.00	548.608	571.386	740.877	1410.072	3103.296
10.00	1229.023	1234.368	1285.619	1666.974	3172.662
100.00	2764.095	2765.303	2777.328	2892.643	3750.692
1000.00	6218.942	6219.214	6221.931	6248.987	6538.448
D=100000.0					
0.01	8452.953	16088.050	35406.697	79482.933	178795.523
0.10	14668.123	19019.145	36198.111	79665.067	178836.599
1.00	31687.593	33003.276	42703.075	81445.751	179246.401
10.00	70988.393	71297.085	74257.372	96284.419	183252.937
100.00	159654.121	159723.883	160418.441	167079.087	216639.943
1000.00	359206.070	359221.773	359378.738	360941.491	375927.945

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	2.364	4.381	9.596	21.530	48.429
0.10	4.235	5.319	9.857	21.590	48.442
1.00	9.213	9.528	11.967	22.179	48.578
10.00	20.657	20.730	21.439	26.927	49.902
100.00	46.461	46.478	46.643	48.237	60.585
1000.00	104.534	104.538	104.575	104.947	108.533
D= 1000.0					
0.01	136.541	253.043	554.250	1243.571	2797.246
0.10	244.602	307.217	569.347	1247.062	2798.034
1.00	532.167	550.355	691.237	1281.031	2805.890
10.00	1193.140	1197.376	1238.299	1555.284	2882.319
100.00	2683.609	2684.566	2694.097	2786.174	3499.389
1000.00	6037.906	6038.121	6040.273	6061.718	6268.890
D=100000.0					
0.01	7886.591	14615.771	32013.476	71028.648	161568.952
0.10	14128.231	17744.829	32885.484	72030.321	161614.458
1.00	30737.981	31788.520	39925.866	73992.340	162068.223
10.00	68915.791	69160.458	71524.170	89833.199	166482.764
100.00	155005.281	155060.529	155611.031	160929.383	202124.697
1000.00	348749.447	348761.882	348886.191	350124.819	362091.112

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.139	0.182	0.367	0.815	1.831
0.10	0.328	0.313	0.409	0.825	1.833
1.00	0.749	0.738	0.705	0.921	1.856
10.00	1.688	1.685	1.661	1.586	2.072
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1000.00	8.546	8.546	8.545	8.531	8.407
D= 1000.0					
0.01	8.043	10.506	21.175	47.061	105.756
0.10	18.947	18.097	23.640	47.645	105.888
1.00	43.258	42.631	40.718	53.189	107.201
10.00	97.492	97.331	95.920	91.616	119.675
100.00	219.393	219.356	218.994	215.821	206.135
1000.00	493.643	493.634	493.552	492.737	485.597
D=100000.0					
0.01	464.568	606.853	1223.092	2718.264	6108.473
0.10	1094.393	1045.277	1365.420	2751.958	6116.094
1.00	2498.587	2462.384	2351.874	3072.195	6191.905
10.00	5631.121	5621.821	5540.365	5291.717	6912.440
100.00	12672.144	12670.023	12649.007	12465.821	11906.363
1000.00	28512.802	28512.324	28507.551	28460.467	28048.097

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.170	0.441	1.017	2.294	5.164
0.10	0.162	0.382	0.993	2.288	5.162
1.00	0.285	0.364	0.859	2.234	5.149
10.00	0.621	0.640	0.819	1.934	5.027
100.00	1.393	1.398	1.441	1.843	4.351
1000.00	3.134	3.135	3.145	3.242	4.147
D= 1000.0					
0.01	9.805	25.490	58.747	132.519	298.244
0.10	9.347	22.062	57.352	132.181	298.167
1.00	16.441	21.031	49.640	120.041	297.406
10.00	35.883	36.991	47.320	111.690	290.342
100.00	80.485	80.737	83.231	106.470	251.303
1000.00	181.036	181.092	181.658	187.269	239.557
D=100000.0					
0.01	566.362	1472.279	3393.220	7654.285	17226.571
0.10	539.892	1274.315	3312.627	7634.746	17222.141
1.00	949.612	1214.756	2867.209	7453.411	17178.179
10.00	2072.602	2136.627	2733.202	6451.220	16770.175
100.00	4648.841	4663.354	4807.410	6149.704	14515.246
1000.00	10456.623	10459.891	10492.547	10815.672	13836.834

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.083	1.890	3.876	8.090	16.771
0.10	1.890	2.295	3.984	8.113	16.776
1.00	3.876	3.984	4.830	8.337	16.823
10.00	8.090	8.113	8.337	10.083	17.281
100.00	16.771	16.776	16.823	17.281	20.845
1000.00	34.386	34.387	34.396	34.492	35.413
D= 1000.0					
0.01	62.561	109.145	223.888	467.258	968.718
0.10	109.145	132.560	230.136	468.593	968.992
1.00	223.888	230.136	278.984	481.521	971.724
10.00	467.258	468.593	481.521	582.416	998.152
100.00	968.718	968.992	971.724	998.152	1203.988
1000.00	1986.132	1986.187	1986.740	1992.241	2045.457
D=100000.0					
0.01	3613.514	6304.217	12931.747	26988.801	55953.162
0.10	6304.217	7656.642	13292.648	27065.948	55968.992
1.00	12931.747	13292.648	16114.097	27812.632	56126.750
10.00	26988.801	27065.948	27812.632	33640.355	57653.232
100.00	55953.162	55968.992	56126.750	57653.232	69542.342
1000.00	114719.000	114722.189	114754.076	115071.849	118145.576

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (QQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.031	0.259	0.650	1.480	3.333
0.10	-0.166	0.069	0.584	1.464	3.329
1.00	-0.464	-0.374	0.154	1.313	3.293
10.00	-1.067	-1.045	-0.841	0.348	2.955
100.00	-2.405	-2.400	-2.350	-1.893	0.792
1000.00	-5.412	-5.411	-5.400	-5.289	-4.260
D= 1000.0					
0.01	1.762	14.983	37.571	85.457	192.488
0.10	-9.600	3.965	33.712	84.536	192.279
1.00	-26.817	-21.600	8.922	75.852	190.206
10.00	-61.609	-60.339	-48.600	20.075	170.667
100.00	-138.908	-138.620	-135.763	-109.351	45.168
1000.00	-312.607	-312.542	-311.894	-305.467	-246.040
D=100000.0					
0.01	101.795	865.425	2170.128	4936.021	11118.098
0.10	-554.501	229.038	1947.207	4882.788	11106.047
1.00	-1548.975	-1247.628	515.335	4381.216	10986.274
10.00	-3558.519	-3485.194	-2807.163	1159.503	9857.735
100.00	-8023.303	-8006.668	-7841.687	-6316.117	2608.683
1000.00	-18056.178	-18052.432	-18015.004	-17643.795	-14211.264

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.114	2.149	4.527	9.569	20.104
0.10	1.723	2.364	4.568	9.576	20.105
1.00	3.412	3.610	4.985	9.650	20.117
10.00	7.023	7.068	7.495	10.431	20.236
100.00	14.367	14.376	14.473	15.388	21.627
1000.00	28.974	28.976	28.997	29.203	31.153
D= 1000.0					
0.01	64.323	124.128	261.459	552.715	1161.296
0.10	99.545	136.525	263.848	553.129	1161.271
1.00	197.070	208.536	287.906	557.373	1161.929
10.00	405.649	408.254	432.920	602.491	1168.819
100.00	829.811	830.373	835.960	888.800	1249.156
1000.00	1673.525	1673.645	1674.845	1686.774	1799.417
D=100000.0					
0.01	3715.308	7169.643	15101.875	31924.822	67071.261
0.10	5749.716	7885.679	15239.855	31948.736	67075.039
1.00	11382.772	12045.020	16029.432	32193.848	67113.024
10.00	23430.282	23580.754	25005.469	34799.858	67510.960
100.00	47929.859	47962.324	48285.063	51337.115	72151.225
1000.00	96662.821	96669.757	96739.073	97428.054	103934.312

CHAPTER 4

CONSTANT LEAD TIMES AND QUADRATIC BACKORDER COSTS

MODEL (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10.0

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.114	0.237	0.618	1.661	4.483
0.10	0.237	0.307	0.641	1.667	4.484
1.00	0.618	0.641	0.829	1.730	4.502
10.00	1.661	1.667	1.730	2.239	4.671
100.00	4.483	4.484	4.502	4.671	6.045
1000.00	12.103	12.103	12.108	12.155	12.611
D= 1000.0					
0.01	9.213	19.221	50.020	134.532	363.096
0.10	19.221	24.875	51.896	135.053	363.237
1.00	50.020	51.696	67.163	140.118	364.642
10.00	134.532	135.053	140.118	181.340	378.319
100.00	363.096	363.237	364.642	378.319	489.617
1000.00	980.322	980.360	980.740	984.534	1021.461
D=100000.0					
0.01	746.253	1556.869	4051.581	10897.112	29410.788
0.10	1556.869	2014.884	4203.545	10939.268	29422.202
1.00	4051.581	4203.545	5440.187	11349.572	29536.023
10.00	10897.112	10939.268	11349.572	14688.505	30643.844
100.00	29410.788	29422.202	29536.023	30648.844	39658.964
1000.00	79406.046	79409.129	79439.946	79747.262	82738.373

MODEL (M, T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.223	0.453	1.136	2.942	7.646
0.10	0.453	0.587	1.177	2.953	7.649
1.00	1.136	1.177	1.508	3.059	7.677
10.00	2.942	2.953	3.059	3.921	7.954
100.00	7.646	7.649	7.677	7.954	10.193
1000.00	19.878	19.879	19.886	19.963	20.680
D= 1000.0					
0.01	18.068	36.656	91.988	238.282	619.303
0.10	36.656	46.077	95.305	239.169	619.534
1.00	91.988	95.305	122.142	247.793	621.840
10.00	238.282	239.169	247.793	317.564	644.261
100.00	619.303	619.534	621.840	644.261	825.666
1000.00	1610.127	1610.188	1610.789	1616.783	1675.079
D=100000.0					
0.01	1463.512	2969.114	7451.036	19300.871	50163.536
0.10	2969.114	3805.130	7719.698	19372.694	50182.264
1.00	7451.036	7719.698	9893.338	20071.214	50369.006
10.00	19300.871	19372.694	20071.214	25722.679	52185.156
100.00	50163.536	50182.264	50369.006	52185.156	66878.966
1000.00	130420.323	130425.194	130473.887	130959.415	135681.405

MODEL (Q,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.218	0.463	1.171	3.037	7.894
0.10	0.422	0.568	1.204	3.046	7.896
1.00	1.047	1.096	1.476	3.130	7.918
10.00	2.710	2.723	2.851	3.838	8.137
100.00	7.041	7.045	7.079	7.412	9.279
1000.00	18.307	18.308	18.317	18.406	19.271
D= 1000.0					
0.01	17.688	37.499	94.879	245.991	639.394
0.10	34.158	45.088	97.408	246.686	639.576
1.00	84.827	88.812	119.568	253.496	641.384
10.00	219.474	220.549	230.911	310.876	659.089
100.00	570.353	570.634	573.427	600.369	808.277
1000.00	1482.845	1482.918	1483.647	1490.911	1560.960
D=100000.0					
0.01	1432.689	3037.448	7685.225	19925.233	51790.938
0.10	2766.836	3724.992	7897.365	19981.584	51805.620
1.00	6870.947	7193.773	9684.980	20533.150	51952.119
10.00	17777.432	17864.463	18703.809	25180.249	53386.190
100.00	46198.609	46221.323	46447.603	48629.902	65470.467
1000.00	120110.477	120116.384	120175.441	120763.769	126437.745

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.299	0.431	1.087	2.816	7.319
0.10	0.414	0.542	1.122	2.825	7.321
1.00	1.036	1.078	1.410	2.916	7.345
10.00	2.682	2.693	2.802	3.665	7.582
100.00	6.979	6.972	7.002	7.284	9.529
1000.00	18.129	18.121	18.128	18.204	18.940
D= 1000.0					
0.01	16.890	34.940	88.017	228.078	592.807
0.10	33.571	43.913	90.844	228.833	593.003
1.00	83.896	87.284	114.174	236.195	594.966
10.00	217.220	218.129	226.939	296.853	614.107
100.00	564.534	564.771	567.135	590.043	771.819
1000.00	1467.727	1467.789	1468.406	1474.550	1534.111
D=100000.0					
0.01	1368.066	2830.148	7129.026	18474.333	48017.329
0.10	2719.245	3556.970	7358.385	18535.466	48033.265
1.00	6795.549	7070.036	9248.123	19131.000	48192.213
10.00	17594.800	17668.426	18382.094	24045.119	49742.680
100.00	45727.275	45746.480	45937.908	47793.444	62517.310
1000.00	118885.921	118890.916	118940.849	119438.560	124262.954

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.015	0.021	0.049	0.126	0.327
0.10	0.038	0.038	0.055	0.128	0.328
1.00	0.100	0.099	0.098	0.143	0.332
10.00	0.260	0.260	0.257	0.254	0.372
100.00	0.676	0.676	0.675	0.669	0.665
1000.00	1.758	1.758	1.758	1.756	1.740
D= 1000.0					
0.01	1.178	1.715	3.975	10.204	26.496
0.10	3.085	3.064	4.461	10.336	26.531
1.00	8.092	8.021	7.966	11.598	26.874
10.00	21.063	21.040	20.853	20.711	30.154
100.00	54.769	54.763	54.705	54.219	53.848
1000.00	142.400	142.398	142.383	142.233	140.969
D=100000.0					
0.01	95.446	138.967	322.011	826.538	2146.207
0.10	249.870	248.160	361.313	837.228	2148.999
1.00	655.488	649.662	645.215	949.414	2176.793
10.00	1706.071	1704.268	1689.120	1677.560	2442.476
100.00	4436.261	4435.784	4431.098	4391.712	4361.656
1000.00	11534.403	11534.278	11533.039	11520.854	11418.451

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.010	0.032	0.085	0.221	0.575
0.10	0.007	0.026	0.082	0.220	0.575
1.00	0.011	0.019	0.067	0.214	0.573
10.00	0.028	0.030	0.049	0.173	0.555
100.00	0.072	0.072	0.078	0.127	0.450
1000.00	0.187	0.187	0.188	0.202	0.331
D= 1000.0					
0.01	0.798	2.559	6.867	17.912	46.588
0.10	0.588	2.074	6.654	17.853	46.572
1.00	0.931	1.528	5.393	17.301	46.419
10.00	2.255	2.420	3.972	14.023	44.982
100.00	5.819	5.862	6.293	10.327	36.459
1000.00	15.118	15.129	15.242	16.361	26.849
D=100000.0					
0.01	64.624	207.300	556.199	1450.906	3773.608
0.10	47.591	168.022	538.981	1446.118	3772.355
1.00	75.399	123.736	436.858	1401.350	3759.906
10.00	182.632	196.037	321.715	1135.830	3643.510
100.00	471.334	474.843	509.696	936.459	2953.157
1000.00	1224.556	1225.469	1234.592	1325.208	2174.790

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q, R) OVER (M, T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.109	0.215	0.518	1.281	3.163
0.10	0.215	0.273	0.536	1.285	3.164
1.00	0.518	0.536	0.679	1.329	3.175
10.00	1.281	1.285	1.329	1.682	3.283
100.00	3.163	3.164	3.175	3.283	4.149
1000.00	7.775	7.776	7.778	7.806	8.069
D= 1000.0					
0.01	8.855	17.435	41.969	103.750	256.207
0.10	17.435	22.102	43.409	104.116	256.297
1.00	41.969	43.409	54.977	107.675	257.197
10.00	103.750	104.116	107.675	136.224	265.942
100.00	256.207	256.297	257.197	265.942	336.049
1000.00	629.806	629.828	630.049	632.240	653.618
D=100000.0					
0.01	717.258	1412.246	3399.456	8403.759	20752.748
0.10	1412.246	1790.246	3516.153	8433.427	20760.062
1.00	3399.456	3516.153	4453.151	8721.642	20832.983
10.00	8403.759	8433.427	8721.642	11034.174	21541.312
100.00	20752.748	20760.062	20832.983	21541.312	27220.002
1000.00	51014.277	51016.066	51033.941	51212.153	52943.027

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (nQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	±0.005	0.010	0.036	0.095	0.248
0.10	±0.031	-0.012	0.027	0.093	0.247
1.00	±0.088	-0.080	-0.032	0.070	0.241
10.00	±0.232	-0.230	-0.208	-0.083	0.183
100.00	±0.604	-0.604	-0.598	-0.542	-0.215
1000.00	±1.571	-1.571	-1.570	-1.554	-1.409
D= 1000.0					
0.01	±0.381	0.844	2.891	7.708	20.091
0.10	±2.497	-0.989	2.193	7.517	20.041
1.00	±7.162	-6.493	-2.572	5.703	19.545
10.00	-18.808	-18.620	-16.882	-6.688	14.828
100.00	-48.950	-48.901	-48.412	-43.892	-17.389
1000.00	-127.282	-127.269	-127.141	-125.872	±114.119
D=100000.0					
0.01	-30.822	68.334	234.188	624.367	1627.401
0.10	-202.279	-80.138	177.668	608.890	1623.355
1.00	-580.089	-525.925	-208.358	461.936	1583.113
10.00	-1523.439	±1508.232	±1367.405	-541.730	1201.034
100.00	-3964.927	±3960.941	±3921.402	-3555.253	-1408.499
1000.00	-10309.847	-10308.810	-10298.446	-10195.646	-9243.659

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (0,R) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =C.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.105	0.226	0.554	1.376	3.411
0.10	0.184	0.261	0.563	1.378	3.412
1.00	0.430	0.456	0.647	1.400	3.417
10.00	1.049	1.056	1.121	1.599	3.466
100.00	2.559	2.560	2.578	2.741	3.934
1000.00	6.204	6.204	6.209	6.252	6.660
D= 1000.0					
0.01	8.475	18.279	44.860	111.458	276.298
0.10	14.938	21.112	45.603	111.634	276.338
1.00	34.807	36.916	52.405	113.378	276.742
10.00	84.942	85.496	90.793	120.536	280.770
100.00	207.257	207.397	208.785	222.050	318.661
1000.00	502.524	502.559	502.907	506.377	539.498
D=100000.0					
0.01	686.436	1480.580	3633.644	9028.126	22380.149
0.10	1209.967	1710.108	3693.820	9042.316	22393.417
1.00	2819.367	2990.227	4244.793	9183.578	22416.006
10.00	6890.320	6925.195	7354.237	10492.444	22742.346
100.00	16787.821	16799.121	16911.580	17986.059	25811.503
1000.00	40764.431	40707.256	40735.494	41016.507	43699.368

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (O,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.463	0.913	2.206	5.496	13.735
0.10	0.913	1.158	2.282	5.515	13.739
1.00	2.206	2.282	2.895	5.706	13.788
10.00	5.496	5.515	5.706	7.239	14.265
100.00	13.735	13.739	13.788	14.265	18.096
1000.00	34.335	34.336	34.349	34.471	35.662
D= 1000.0					
0.01	34.263	67.522	163.167	406.468	1015.807
0.10	67.522	85.658	168.805	407.919	1016.171
1.00	163.167	168.805	214.144	422.013	1019.797
10.00	406.468	407.919	422.013	535.360	1055.032
100.00	1015.807	1016.171	1019.797	1055.032	1338.400
1000.00	2539.427	2539.518	2540.427	2549.492	2637.581
D=100000.0					
0.01	2534.094	4993.932	12067.866	30062.395	75129.090
0.10	4993.932	6335.235	12484.830	30169.665	75155.987
1.00	12067.866	12484.830	15838.086	31212.075	75424.162
10.00	30062.395	30169.665	31212.075	39595.216	78030.188
100.00	75129.090	75155.987	75424.162	78030.188	98988.040
1000.00	187815.999	187822.725	187889.968	188560.406	195075.470

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.611	1.550	3.692	8.616	20.670
0.10	1.550	1.946	3.721	8.645	20.678
1.00	3.692	3.721	4.671	8.930	20.748
10.00	8.616	8.645	8.930	11.209	21.432
100.00	20.670	20.678	20.748	21.432	26.902
1000.00	49.607	49.609	49.626	49.795	51.438
D= 1000.0					
0.01	59.971	114.666	266.410	637.212	1528.785
0.10	114.666	143.930	275.198	639.384	1529.308
1.00	266.419	275.198	345.432	660.475	1534.521
10.00	637.212	639.384	660.475	829.037	1585.141
100.00	1528.785	1529.308	1534.521	1585.141	1989.688
1000.00	3668.959	3669.084	3670.339	3682.851	3804.338
D=100000.0					
0.01	4435.441	8480.687	19703.681	47128.175	113068.942
0.10	8480.687	10645.059	20353.650	47288.835	113107.619
1.00	19703.681	20353.650	25548.142	48848.760	113493.203
10.00	47128.175	47288.835	48848.760	61315.541	117237.023
100.00	113068.942	113107.619	113493.203	117237.023	147157.299
1000.00	271356.177	271365.462	271458.285	272383.688	281368.856

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (QQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.795	1.583	3.706	8.871	21.284
0.10	1.453	1.908	3.799	8.894	21.290
1.00	3.344	3.488	4.580	9.118	21.345
10.00	7.990	8.026	8.371	10.993	21.884
100.00	19.168	19.177	19.263	20.091	26.383
1000.00	46.002	46.004	46.025	46.231	48.218
D= 1000.0					
0.01	58.813	117.082	274.072	656.073	1574.166
0.10	107.487	141.150	280.996	657.773	1574.575
1.00	247.343	257.970	338.760	674.389	1578.654
10.00	590.972	593.622	619.127	813.025	1618.535
100.00	1417.695	1418.333	1424.694	1485.906	1951.260
1000.00	3402.314	3402.467	3404.000	3419.265	3566.174
D=100000.0					
0.01	4349.778	8659.348	20270.357	48523.150	116425.321
0.10	7049.768	10439.467	20782.435	48648.857	116455.561
1.00	18293.466	19079.444	25054.722	49877.845	116757.258
10.00	43708.306	43904.318	45790.665	60131.333	119706.828
100.00	104852.701	104899.934	105370.363	109897.596	144315.199
1000.00	251635.142	251646.483	251759.841	252888.872	263754.232

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.762	1.484	3.459	8.277	19.859
0.10	1.430	1.829	3.561	8.302	19.865
1.00	3.311	3.433	4.391	8.546	19.925
10.00	7.915	7.946	8.239	10.538	20.511
100.00	18.989	18.996	19.069	19.774	25.290
1000.00	45.572	45.574	45.591	45.766	47.457
D= 1000.0					
0.01	56.377	109.739	255.842	612.164	1468.747
0.10	105.792	135.306	263.373	614.020	1469.194
1.00	244.855	253.901	324.733	632.096	1473.648
10.00	585.407	587.651	609.363	779.360	1517.029
100.00	1404.437	1404.977	1410.363	1462.472	1870.463
1000.00	3370.519	3370.648	3371.945	3384.871	3509.932
D=100000.0					
0.01	4169.665	8116.282	18922.046	45275.659	108628.560
0.10	7824.392	10007.195	19479.078	45412.911	108661.580
1.00	18109.453	18778.541	24017.268	46749.787	108990.987
10.00	43296.716	43462.687	45068.498	57641.443	112199.488
100.00	103872.149	103912.119	104310.448	108164.396	138339.464
1000.00	249283.562	249293.158	249389.086	250345.076	259594.551

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.049	0.067	0.143	0.339	0.812
0.10	0.120	0.117	0.160	0.343	0.813
1.00	0.291	0.288	0.280	0.384	0.823
10.00	0.700	0.699	0.691	0.672	0.921
100.00	1.681	1.681	1.679	1.659	1.612
1000.00	4.035	4.035	4.035	4.029	3.981
D= 1000.0					
0.01	3.594	4.927	10.568	25.048	60.038
0.10	8.874	8.624	11.825	25.364	60.114
1.00	21.555	21.297	20.699	28.380	60.874
10.00	51.804	51.733	51.112	49.677	68.112
100.00	124.348	124.331	124.158	122.669	119.224
1000.00	298.440	298.436	298.394	297.980	294.407
D=100000.0					
0.01	265.777	364.405	781.635	1852.516	4440.392
0.10	656.295	637.864	874.572	1875.923	4446.038
1.00	1594.228	1575.109	1530.874	2098.973	4502.216
10.00	3831.458	3826.148	3780.261	3674.098	5037.536
100.00	9196.793	9195.500	9182.755	9072.627	8817.835
1000.00	22072.615	22072.304	22069.199	22038.612	21774.305

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.033	0.099	0.246	0.594	1.425
0.10	0.023	0.079	0.238	0.592	1.425
1.00	0.034	0.055	0.190	0.572	1.420
10.00	0.075	0.081	0.132	0.455	1.372
100.00	0.179	0.181	0.194	0.317	1.092
1000.00	0.430	0.430	0.433	0.465	0.760
D= 1000.0					
0.01	2.435	7.343	18.230	43.909	105.419
0.10	1.695	5.845	17.622	43.753	105.381
1.00	2.488	4.068	14.027	42.294	105.006
10.00	5.565	5.971	9.764	33.665	101.505
100.00	13.258	13.356	14.331	23.434	80.797
1000.00	31.795	31.819	32.055	34.394	56.242
D=100000.0					
0.01	160.114	543.066	1348.311	3247.492	7796.770
0.10	125.376	432.272	1303.358	3235.946	7793.980
1.00	184.013	300.903	1037.454	3128.058	7766.271
10.00	411.589	441.631	722.167	2489.889	7507.340
100.00	980.552	987.814	1059.915	1733.200	5975.734
1000.00	2351.580	2353.325	2370.755	2543.797	4159.681

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.348	0.637	1.396	3.120	6.936
0.10	0.637	0.788	1.439	3.130	6.938
1.00	1.396	1.439	1.775	3.224	6.960
10.00	3.120	3.130	3.224	3.971	7.168
100.00	6.936	6.938	6.960	7.168	8.806
1000.00	15.272	15.273	15.277	15.324	15.776
D= 1000.0					
0.01	25.708	47.144	103.242	230.743	512.978
0.10	47.144	58.272	106.393	231.465	513.137
1.00	103.242	106.393	131.288	238.462	514.725
10.00	230.743	231.465	238.462	293.677	530.109
100.00	512.978	513.137	514.725	530.109	651.288
1000.00	1129.532	1129.566	1129.912	1133.360	1166.758
D=100000.0					
0.01	1001.348	3486.755	7635.815	17065.780	37939.852
0.10	3486.755	4309.825	7868.820	17119.170	37951.631
1.00	7635.815	7868.820	9710.056	17636.684	38069.041
10.00	17065.780	17119.170	17636.684	21720.325	39206.835
100.00	37939.852	37951.631	38069.041	39206.835	48169.258
1000.00	83540.177	83542.736	83568.317	83823.282	86293.386

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (60,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	-0.016	0.033	0.104	0.255	0.614
0.10	-0.097	-0.038	0.078	0.249	0.612
1.00	-0.258	-0.233	-0.090	0.188	0.597
10.00	-0.625	-0.619	-0.559	-0.216	0.452
100.00	-1.502	-1.500	-1.485	-1.342	-0.520
1000.00	-3.605	-3.605	-3.601	-3.564	-3.220
D= 1000.0					
0.01	-1.158	2.416	7.662	18.861	45.381
0.10	-7.178	-2.780	5.798	18.389	45.267
1.00	-19.067	-17.228	-6.671	13.914	44.133
10.00	-46.239	-45.761	-41.348	-16.011	33.394
100.00	-111.090	-110.975	-109.827	-99.235	-38.428
1000.00	-266.645	-266.617	-266.339	-263.586	-238.164
D=100000.0					
0.01	-85.663	178.661	566.676	1394.976	3356.378
0.10	-530.919	-205.592	428.785	1360.023	3347.942
1.00	-1410.215	-1274.206	-493.420	1029.085	3264.055
10.00	-3419.869	-3384.517	-3058.094	-1184.208	2469.804
100.00	-8216.241	-8207.685	-8122.840	-7339.427	-2842.100
1000.00	-19721.034	-19718.979	-19698.445	-19494.815	-17614.624

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (QQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.10

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.332	0.670	1.500	3.375	7.549
0.10	0.540	0.750	1.517	3.378	7.550
1.00	1.138	1.206	1.685	3.412	7.556
10.00	2.495	2.511	2.665	3.754	7.619
100.00	5.434	5.438	5.475	5.826	8.286
1000.00	11.667	11.668	11.676	11.760	12.555
D= 1000.0					
0.01	24.550	49.559	110.904	249.605	558.359
0.10	39.965	55.493	112.190	249.854	558.404
1.00	84.175	89.165	124.616	252.377	558.857
10.00	184.504	185.704	197.115	277.665	563.502
100.00	401.888	402.163	404.897	430.874	612.860
1000.00	862.887	862.950	863.573	869.774	928.593
D=100000.0					
0.01	1815.684	3665.416	8202.491	18460.755	41296.230
0.10	2055.836	4104.233	8297.605	18479.193	41299.573
1.00	6225.600	6594.614	9216.636	18665.770	41333.006
10.00	13645.911	13734.653	14578.590	20536.117	41676.640
100.00	29723.611	29743.046	29946.201	31867.408	45327.158
1000.00	63819.143	63823.757	63869.072	64328.467	68678.761

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	2.329	4.175	8.921	19.566	43.032
0.10	4.175	5.124	9.186	19.626	43.045
1.00	8.921	9.186	11.272	20.208	43.177
10.00	19.566	19.626	20.208	24.799	44.458
100.00	43.032	43.045	43.177	44.458	54.557
1000.00	94.667	94.670	94.699	94.990	97.807
D= 1000.0					
0.01	152.803	273.937	585.300	1283.720	2823.315
0.10	273.937	336.168	602.661	1287.661	2824.185
1.00	585.300	602.661	739.569	1325.854	2832.854
10.00	1283.720	1287.661	1325.854	1627.052	2916.878
100.00	2823.315	2824.185	2832.854	2916.878	3579.514
1000.00	6211.102	6211.294	6213.207	6232.280	6417.132
D=100000.0					
0.01	10025.437	17972.989	38401.565	84224.901	185237.719
0.10	17972.989	22055.962	39540.576	84483.444	185294.783
1.00	38401.565	39540.576	48523.117	86989.266	185863.577
10.00	84224.901	84483.444	86989.266	106750.857	191376.386
100.00	185237.719	185294.783	185863.577	191376.386	234851.886
1000.00	407510.424	407522.982	407648.523	408899.869	421028.049

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	4.127	7.147	14.602	30.576	64.192
0.10	7.147	8.666	15.009	30.665	64.211
1.00	14.602	15.009	18.198	31.520	64.396
10.00	30.576	30.665	31.520	38.216	66.192
100.00	64.192	64.211	64.396	66.192	80.254
1000.00	134.799	134.803	134.842	135.232	139.003
D= 1000.0					
0.01	270.743	468.939	958.054	2006.120	4211.631
0.10	468.939	568.560	984.771	2011.914	4212.852
1.00	958.054	984.771	1193.976	2068.019	4225.020
10.00	2006.120	2011.914	2068.019	2507.349	4342.840
100.00	4211.631	4212.852	4225.020	4342.840	5265.432
1000.00	8844.169	8844.426	8846.990	8872.542	9119.965
D=100000.0					
0.01	17763.432	30767.062	62857.953	131621.539	276325.130
0.10	30767.062	37303.208	64610.830	132001.700	276405.231
1.00	62857.953	64610.830	78336.736	135682.744	277203.571
10.00	131621.539	132001.700	135682.744	164507.146	284933.762
100.00	276325.130	276405.231	277203.571	284933.762	345465.007
1000.00	580265.947	580282.774	580450.986	582127.499	598360.900

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (00, R, T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	4.059	7.275	14.957	31.342	65.803
0.10	6.766	8.524	15.277	31.411	65.818
1.00	13.712	14.209	17.900	32.082	65.962
10.00	28.685	28.794	29.839	37.590	67.372
100.00	60.216	60.239	60.468	62.663	78.938
1000.00	126.449	126.454	126.502	126.983	131.592
D= 1000.0					
0.01	266.305	477.297	981.355	2056.331	4317.345
0.10	443.937	559.240	1002.325	2060.845	4318.295
1.00	899.618	932.269	1174.404	2104.882	4327.774
10.00	1882.047	1889.197	1957.764	2466.249	4420.252
100.00	3950.790	3952.298	3967.314	4111.305	5179.122
1000.00	8296.342	8296.659	8299.826	8331.359	8633.740
D=100000.0					
0.01	17472.257	31315.488	64386.684	134915.884	283261.006
0.10	29126.737	36691.739	65762.524	135212.036	283323.357
1.00	59023.915	61166.148	77052.652	138101.300	283945.277
10.00	123481.087	123950.222	128448.911	161810.569	290012.731
100.00	259211.330	259310.282	260295.467	269742.714	339802.194
1000.00	544323.004	544343.793	544551.593	546620.481	566459.698

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	3.916	6.886	14.110	29.555	62.049
0.10	6.676	8.224	14.461	29.631	62.065
1.00	13.595	14.019	17.270	30.368	62.224
10.00	28.456	28.549	29.440	36.266	63.773
100.00	59.739	59.758	59.952	61.824	76.159
1000.00	125.447	125.451	125.492	125.900	129.831
D= 1000.0					
0.01	256.930	451.805	925.747	1939.088	4071.035
0.10	437.997	539.552	948.791	1944.068	4072.084
1.00	891.943	919.793	1133.060	1992.461	4082.543
10.00	1867.016	1873.080	1931.566	2379.426	4184.169
100.00	3919.456	3920.734	3933.468	4056.288	4996.794
1000.00	8230.590	8230.858	8233.542	8260.282	8518.206
D=100000.0					
0.01	16857.156	29642.947	60738.247	127223.542	267100.612
0.10	28736.971	35400.027	62250.189	127550.318	267169.439
1.00	58520.367	60347.639	74340.057	130725.397	267855.649
10.00	122494.943	122892.770	126730.042	156114.120	274523.333
100.00	257155.523	257239.381	258074.817	266133.088	327839.651
1000.00	540008.982	540026.599	540202.700	541957.116	558879.486

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	R^C=0.01	R^C=0.1	R^C=1.0	R^C=10.0	R^C=100.0
D= 10.0					
0.01	0.211	0.261	0.492	1.022	2.143
0.10	0.472	0.442	0.548	1.034	2.146
1.00	1.008	0.990	0.928	1.152	2.172
10.00	2.120	2.116	2.080	1.950	2.418
100.00	4.453	4.452	4.444	4.368	4.094
1000.00	9.352	9.352	9.350	9.332	9.172
D= 1000.0					
0.01	13.813	17.133	32.308	67.032	140.596
0.10	30.942	29.007	35.980	67.846	140.768
1.00	66.112	64.978	60.916	75.558	142.477
10.00	139.104	138.834	136.453	127.923	156.671
100.00	292.175	292.118	291.552	286.552	268.638
1000.00	613.560	613.568	613.447	612.260	601.759
D=100000.0					
0.01	906.276	1124.115	2119.706	4397.996	9224.519
0.10	2030.091	1903.181	2360.642	4451.382	9235.793
1.00	4337.586	4263.191	3996.679	4957.347	9347.902
10.00	9126.595	9108.930	8952.702	8393.027	10410.429
100.00	19169.607	19165.850	19128.754	18800.674	17625.356
1000.00	40256.965	40256.175	40248.286	40170.383	39481.414

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.143	0.389	0.848	1.787	3.754
0.10	0.091	0.300	0.816	1.780	3.753
1.00	0.117	0.190	0.630	1.713	3.738
10.00	0.229	0.246	0.399	1.323	3.598
100.00	0.478	0.481	0.516	0.839	2.779
1000.00	1.002	1.003	1.010	1.083	1.761
D= 1000.0					
0.01	9.375	25.492	55.608	117.243	246.310
0.10	5.941	19.688	53.534	116.777	246.211
1.00	7.675	12.475	41.344	112.420	245.231
10.00	15.030	16.117	26.198	86.823	236.083
100.00	31.324	31.564	33.846	55.016	182.328
1000.00	65.753	65.801	66.284	71.077	115.534
D=100000.0					
0.01	615.101	1672.541	3648.437	7692.342	16160.395
0.10	389.766	1291.712	3512.335	7661.718	16153.918
1.00	503.549	818.509	2712.595	7375.904	16089.608
10.00	986.143	1057.453	1718.869	5696.449	15489.398
100.00	2055.807	2070.901	2220.650	3609.625	11962.543
1000.00	4314.022	4317.194	4348.092	4663.366	7580.213

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.798	2.972	5.681	11.011	21.160
0.10	2.972	3.542	5.824	11.039	21.165
1.00	5.681	5.824	6.926	11.312	21.219
10.00	11.011	11.039	11.312	13.417	21.734
100.00	21.160	21.165	21.219	21.734	25.696
1000.00	40.132	40.133	40.143	40.242	41.195
D= 1000.0					
0.01	117.939	195.002	372.754	722.400	1388.316
0.10	195.002	232.392	382.110	724.253	1388.667
1.00	372.754	382.110	454.407	742.165	1392.166
10.00	722.400	724.253	742.165	880.297	1425.962
100.00	1388.316	1388.667	1392.166	1425.962	1695.919
1000.00	2633.067	2633.132	2633.782	2640.263	2702.833
D=100000.0					
0.01	7737.995	12794.073	24456.387	47396.637	91087.411
0.10	12794.073	15247.245	25070.255	47518.256	91110.448
1.00	24456.387	25070.255	29813.619	48693.478	91339.994
10.00	47396.637	47518.256	48693.478	57756.289	93557.376
100.00	91087.411	91110.448	91339.994	93557.376	110613.121
1000.00	172755.523	172759.791	172802.463	173227.629	177332.851

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	-0.068	0.127	0.355	0.765	1.611
0.10	-0.381	-0.142	0.268	0.746	1.607
1.00	-0.891	-0.800	-0.298	0.562	1.566
10.00	-1.891	-1.870	-1.680	-0.626	1.180
100.00	-3.976	-3.971	-3.928	-3.529	-1.316
1000.00	-8.350	-8.349	-8.340	-8.248	-7.411
D= 1000.0					
0.01	-4.438	8.359	23.300	50.211	105.714
0.10	-25.001	-9.320	17.554	48.931	105.443
1.00	-58.437	-52.502	-19.571	36.863	102.754
10.00	-124.073	-122.717	-110.255	-41.100	77.412
100.00	-260.841	-260.554	-257.706	-231.536	-86.310
1000.00	-547.827	-547.767	-547.163	-541.183	-486.225
D=100000.0					
0.01	-291.176	548.426	1528.731	3294.345	6935.876
0.10	-1640.325	-611.469	1151.694	3210.336	6918.125
1.00	-3834.037	-3444.682	-1284.085	2418.557	6741.706
10.00	-8140.452	-8051.478	-7233.833	-2696.577	5078.969
100.00	-17113.800	-17094.949	-16908.104	-15191.048	-5662.813
1000.00	-35942.943	-35938.981	-35899.393	-35507.017	-31901.202

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 1.00

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.730	3.100	6.036	11.774	22.771
0.10	2.591	3.400	6.092	11.785	22.773
1.00	4.791	5.024	6.628	11.874	22.785
10.00	9.119	9.168	9.631	12.791	22.914
100.00	17.184	17.194	17.291	18.205	24.381
1000.00	31.782	31.784	31.803	31.993	33.785
D= 1000.0					
0.01	113.501	203.361	396.054	772.611	1494.030
0.10	170.001	223.072	399.664	773.184	1494.110
1.00	314.317	329.608	434.835	779.028	1494.920
10.00	598.326	601.536	631.910	839.197	1503.374
100.00	1127.475	1128.113	1134.460	1194.427	1599.608
1000.00	2085.240	2085.365	2086.619	2090.080	2216.608
D=100000.0					
0.01	7446.819	13342.499	25985.119	50690.983	98023.287
0.10	11153.748	14635.777	26221.948	50728.592	98028.573
1.00	20622.350	21625.573	28529.535	51112.034	98081.700
10.00	39256.185	39466.778	41459.645	55059.711	98636.345
100.00	73973.611	74015.499	74431.890	78366.328	104950.308
1000.00	136812.580	136820.811	136903.070	137720.612	145431.650

CHAPTER 5

CONSTANT LEAD TIMES AND EXPONENTIAL BACKORDER COSTS

MODEL (Q,R)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.053	0.120	0.350	1.059	3.217
0.10	0.120	0.160	0.364	1.063	3.218
1.00	0.350	0.364	0.486	1.108	3.232
10.00	1.059	1.063	1.108	1.479	3.368
100.00	3.217	3.218	3.232	3.368	4.496
1000.00	9.779	9.780	9.784	9.826	10.240
D= 1000.0					
0.01	3.635	8.279	24.153	73.108	222.152
0.10	8.279	11.050	25.169	73.425	222.249
1.00	24.153	25.169	33.592	76.514	223.211
10.00	73.108	73.425	76.514	102.121	232.604
100.00	222.152	222.249	223.211	232.604	310.448
1000.00	675.314	675.343	675.636	678.563	707.116
D=100000.0					
0.01	251.013	571.740	1667.905	5048.565	15340.971
0.10	571.740	763.081	1738.090	5070.432	15347.636
1.00	1667.905	1738.090	2319.766	5283.792	15414.114
10.00	5048.565	5070.432	5283.792	7052.088	16062.729
100.00	15340.971	15347.636	15414.114	16062.729	21438.348
1000.00	46634.527	46636.553	46656.314	46853.907	48830.696

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.102	0.228	0.643	1.883	5.534
0.10	0.228	0.301	0.669	1.891	5.537
1.00	0.643	0.669	0.886	1.968	5.560
10.00	1.883	1.891	1.968	2.604	5.787
100.00	5.534	5.537	5.560	5.787	7.656
1000.00	16.270	16.271	16.278	16.346	17.013
D= 1000.0					
0.01	7.077	15.725	44.419	130.046	382.174
0.10	15.725	20.806	46.231	130.592	382.335
1.00	44.419	46.231	61.169	135.919	383.941
10.00	130.046	130.592	135.919	179.837	399.601
100.00	382.174	382.335	383.941	399.601	528.721
1000.00	1123.543	1123.590	1124.064	1128.786	1174.827
D=100000.0					
0.01	488.697	1085.892	3067.409	8980.456	26391.419
0.10	1085.892	1436.769	3192.522	9018.182	26402.549
1.00	3067.409	3192.522	4224.101	9386.015	26513.454
10.00	8980.456	9018.182	9386.015	12418.858	27594.883
100.00	26391.419	26402.540	26513.454	27594.883	36511.443
1000.00	77587.502	77590.773	77623.467	77943.555	81128.757

MODEL (Q,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.100	0.234	0.666	1.952	5.737
0.10	0.210	0.294	0.687	1.958	5.739
1.00	0.587	0.618	0.865	2.019	5.757
10.00	1.716	1.726	1.818	2.542	5.937
100.00	5.043	5.046	5.074	5.344	7.475
1000.00	14.826	14.827	14.835	14.917	15.710
D= 1000.0					
0.01	6.909	16.134	45.998	134.804	396.196
0.10	14.521	20.312	47.433	135.234	396.322
1.00	40.536	42.692	59.717	139.454	397.588
10.00	118.521	119.176	125.515	175.568	409.996
100.00	348.259	348.452	350.378	369.013	516.171
1000.00	1023.824	1023.881	1024.449	1030.111	1084.898
D=100000.0					
0.01	477.097	1114.139	3176.437	9309.007	27359.728
0.10	1002.771	1402.665	3275.570	9338.723	27368.482
1.00	2799.266	2948.146	4123.835	9630.175	27455.847
10.00	8184.605	8229.842	8667.548	12124.074	28312.715
100.00	24049.394	24062.740	24195.734	25482.591	35644.778
1000.00	70701.294	70705.219	70744.455	71135.458	74918.818

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.
D= 10.0					
0.01	0.095	0.216	0.612	1.792	5.268
0.10	0.206	0.279	0.634	1.799	5.270
1.00	0.580	0.606	0.821	1.865	5.289
10.00	1.696	1.704	1.782	2.413	5.482
100.00	4.985	4.987	5.011	5.240	7.095
1000.00	14.655	14.656	14.663	14.732	15.406
D= 1000.0					
0.01	6.558	14.897	42.259	123.778	363.771
0.10	14.240	19.281	43.796	124.240	363.907
1.00	40.034	41.864	56.686	128.761	365.267
10.00	117.148	117.701	123.081	166.657	378.557
100.00	344.251	344.415	346.042	361.857	489.971
1000.00	1012.051	1012.099	1012.579	1017.362	1063.860
D=100000.0					
0.01	452.880	1028.706	2918.216	8547.624	25120.605
0.10	883.326	1331.467	3024.395	8579.554	25130.014
1.00	2764.622	2890.977	3914.514	8891.721	25223.888
10.00	8089.771	8127.987	8499.473	11508.672	26141.660
100.00	23772.658	23783.927	23896.282	24988.452	33835.496
1000.00	69888.301	69891.615	69924.745	70255.071	73466.049

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.008	0.012	0.031	0.091	0.266
0.10	0.022	0.022	0.035	0.092	0.267
1.00	0.063	0.063	0.065	0.104	0.270
10.00	0.187	0.187	0.186	0.191	0.305
100.00	0.549	0.549	0.549	0.547	0.561
1000.00	1.615	1.615	1.614	1.614	1.607
D= 1000.0					
0.01	0.519	0.828	2.160	6.268	18.403
0.10	1.485	1.525	2.435	6.352	18.427
1.00	4.385	4.367	4.483	7.158	18.674
10.00	12.898	12.891	12.836	13.180	21.044
100.00	37.922	37.920	37.899	37.744	38.750
1000.00	111.492	111.491	111.485	111.424	110.966
D=100000.0					
0.01	35.817	57.186	149.193	432.332	1270.815
0.10	102.566	105.302	168.127	438.628	1272.526
1.00	302.787	301.545	309.587	494.294	1289.566
10.00	890.685	890.194	886.541	910.186	1453.223
100.00	2618.761	2618.613	2617.172	2606.431	2675.948
1000.00	7699.202	7699.158	7698.722	7694.485	7662.908

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.005	0.018	0.054	0.160	0.470
0.10	0.004	0.015	0.053	0.159	0.469
1.00	0.007	0.012	0.044	0.155	0.468
10.00	0.020	0.021	0.035	0.129	0.455
100.00	0.058	0.058	0.063	0.104	0.379
1000.00	0.170	0.171	0.172	0.185	0.305
D= 1000.0					
0.01	0.351	1.237	3.739	11.026	32.425
0.10	0.282	1.031	3.637	10.994	32.415
1.00	0.502	0.828	3.031	10.694	32.321
10.00	1.373	1.475	2.434	8.912	31.439
100.00	4.007	4.037	4.336	7.156	26.200
1000.00	11.773	11.782	11.870	12.749	21.038
D=100000.0					
0.01	24.217	85.434	258.221	761.384	2239.122
0.10	19.445	71.197	251.175	759.170	2238.468
1.00	34.644	57.168	209.320	738.454	2231.959
10.00	94.834	101.854	168.075	615.402	2171.055
100.00	276.736	278.813	299.452	494.139	1809.282
1000.00	812.994	813.605	819.710	860.388	1452.770

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.050	0.108	0.293	0.825	2.317
0.10	0.108	0.141	0.305	0.828	2.318
1.00	0.293	0.305	0.399	0.860	2.328
10.00	0.825	0.828	0.860	1.125	2.418
100.00	2.317	2.318	2.328	2.418	3.161
1000.00	6.491	6.491	6.494	6.520	6.773
D= 1000.0					
0.01	3.442	7.445	20.266	56.938	160.021
0.10	7.445	9.756	21.062	57.167	160.086
1.00	20.266	21.062	27.577	59.404	160.729
10.00	56.938	57.167	59.404	77.716	166.997
100.00	160.021	160.086	160.729	166.997	218.273
1000.00	443.229	448.247	448.427	450.223	467.710
D=100000.0					
0.01	237.684	514.152	1399.503	3931.891	11050.448
0.10	514.152	673.688	1454.432	3947.749	11054.904
1.00	1399.503	1454.432	1904.336	4102.222	11099.340
10.00	3931.891	3947.749	4102.222	5366.770	11532.154
100.00	11050.448	11054.904	11099.340	11532.154	15073.095
1000.00	30952.976	30954.220	30966.653	31090.648	32298.261

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	-0.002	0.006	0.023	0.069	0.203
0.10	-0.017	-0.007	0.017	0.067	0.203
1.00	-0.056	-0.051	-0.021	0.051	0.198
10.00	-0.167	-0.165	-0.151	-0.062	0.151
100.00	-0.491	-0.491	-0.486	-0.443	-0.182
1000.00	-1.444	-1.444	-1.443	-1.429	-1.302
D= 1000.0					
0.01	-0.168	0.409	1.579	4.758	14.022
0.10	-1.204	-0.494	1.203	4.642	13.988
1.00	-3.883	-3.539	-1.452	3.536	13.647
10.00	-11.525	-11.416	-10.404	-4.269	10.395
100.00	-33.915	-33.883	-33.563	-30.588	-12.550
1000.00	-99.719	-99.710	-99.615	-98.675	-89.929
D=100000.0					
0.01	-11.600	28.248	109.028	328.552	968.309
0.10	-83.121	-34.104	83.048	320.542	965.942
1.00	-268.143	-244.376	-100.267	244.161	942.392
10.00	-795.850	-788.340	-718.467	-294.784	717.832
100.00	-2342.025	-2339.800	-2317.720	-2112.292	-866.660
1000.00	-6886.208	-6885.553	-6879.012	-6814.997	-6210.138

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (QQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.047	0.114	0.316	0.893	2.520
0.10	0.090	0.134	0.322	0.895	2.521
1.00	0.237	0.254	0.378	0.911	2.525
10.00	0.658	0.663	0.710	1.064	2.569
100.00	1.826	1.828	1.841	1.975	2.979
1000.00	5.047	5.047	5.051	5.091	5.471
D= 1000.0					
0.01	3.274	7.854	21.845	61.695	174.043
0.10	6.242	9.262	22.264	61.809	174.074
1.00	16.383	17.523	26.125	62.940	174.376
10.00	45.413	45.751	49.009	79.447	177.392
100.00	126.106	126.203	127.166	136.409	205.723
1000.00	348.510	348.538	348.813	351.548	377.782
D=100000.0					
0.01	226.083	542.399	1508.531	4260.443	12018.757
0.10	431.031	639.584	1537.480	4268.291	12020.846
1.00	1131.360	1210.056	1804.069	4346.383	12041.732
10.00	3136.041	3159.409	3383.756	5071.986	12249.987
100.00	8708.423	8715.103	8781.620	9419.863	14206.429
1000.00	24066.768	24068.666	24087.641	24276.551	26088.123

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (Q,R)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.1

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.211	0.457	1.250	3.534	10.034
0.10	0.457	0.600	1.299	3.549	10.038
1.00	1.250	1.299	1.703	3.689	10.079
10.00	3.534	3.549	3.689	4.837	10.476
100.00	10.034	10.038	10.079	10.476	13.737
1000.00	28.495	28.496	28.507	28.623	29.753
D= 1000.0					
0.01	13.213	28.616	78.184	221.144	627.793
0.10	28.616	37.524	81.269	222.043	628.049
1.00	78.184	81.269	106.567	230.804	630.603
10.00	221.144	222.043	230.804	302.650	655.482
100.00	627.793	628.049	630.603	655.482	859.527
1000.00	1782.860	1782.933	1783.660	1790.912	1861.570
D=100000.0					
0.01	826.683	1790.437	4891.839	13836.567	39279.829
0.10	1790.437	2347.779	5084.840	13892.824	39295.849
1.00	4891.839	5084.840	6667.694	14440.945	39455.619
10.00	13836.567	13892.824	14440.945	18936.250	41012.285
100.00	39279.829	39295.849	39455.619	41912.285	53778.950
1000.00	111550.164	111554.714	111600.212	112053.958	116474.889

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.1

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.367	0.773	2.040	5.569	15.252
0.10	0.773	1.004	2.118	5.590	15.258
1.00	2.040	2.118	2.752	5.803	15.318
10.00	5.569	5.590	5.803	7.539	15.901
100.00	15.252	15.258	15.318	15.901	20.658
1000.00	41.788	41.790	41.806	41.971	43.568
D= 1000.0					
0.01	22.931	48.364	127.657	348.413	954.276
0.10	48.364	62.832	132.518	349.781	954.652
1.00	127.657	132.518	172.159	363.098	958.399
10.00	348.413	349.781	363.098	471.716	994.889
100.00	954.276	954.652	958.399	994.889	1292.501
1000.00	2614.613	2614.716	2615.745	2626.015	2725.995
D=100000.0					
0.01	1434.768	3026.048	7987.271	21799.539	59707.222
0.10	3026.048	3931.264	8291.372	21885.122	59730.737
1.00	7987.271	8291.372	10771.663	22718.359	59965.234
10.00	21799.539	21885.122	22718.359	29514.358	62248.304
100.00	59707.222	59730.737	59965.234	62248.304	80869.341
1000.00	163591.342	163597.787	163662.218	164304.743	170560.353

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (0Q,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.1

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.358	0.792	2.108	5.759	15.774
0.10	0.718	0.982	2.169	5.776	15.779
1.00	1.873	1.966	2.690	5.944	15.826
10.00	5.106	5.132	5.387	7.372	16.287
100.00	13.983	13.990	14.062	14.760	20.199
1000.00	38.311	38.313	38.333	38.531	40.443
D= 1000.0					
0.01	22.422	49.539	131.893	360.313	986.962
0.10	44.895	61.437	135.737	361.380	987.258
1.00	117.196	123.012	168.337	371.919	990.203
10.00	319.467	321.117	337.053	461.242	1019.058
100.00	874.887	875.341	879.862	923.526	1263.803
1000.00	2397.066	2397.190	2398.433	2410.821	2530.460
D=100000.0					
0.01	1402.911	3099.561	8252.319	22544.097	61752.359
0.10	2808.991	3843.976	8492.797	22611.353	61770.826
1.00	7332.740	7696.634	10532.495	23270.264	61955.108
10.00	19988.467	20091.707	21088.777	28859.037	63760.523
100.00	54740.008	54768.399	55051.277	57783.249	79073.761
1000.00	149979.840	149987.622	150065.413	150840.498	158326.103

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.1

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.341	0.735	1.947	5.317	14.564
0.10	0.705	0.935	2.014	5.336	14.569
1.00	1.851	1.930	2.563	5.517	14.620
10.00	5.051	5.073	5.289	7.022	15.117
100.00	13.833	13.839	13.900	14.493	19.239
1000.00	37.899	37.901	37.918	38.085	39.710
D= 1000.0					
0.01	21.357	45.979	121.844	332.692	911.258
0.10	44.081	58.517	125.983	333.854	911.577
1.00	115.840	120.781	160.337	345.194	914.760
10.00	316.006	317.401	330.949	439.323	945.832
100.00	865.474	865.857	869.680	906.777	1203.744
1000.00	2371.293	2371.398	2372.448	2382.922	2484.568
D=100000.0					
0.01	1336.241	2876.838	7623.577	20815.931	57015.690
0.10	2758.047	3661.300	7882.536	20888.601	57035.651
1.00	7247.882	7557.048	10031.962	21598.147	57234.766
10.00	19771.910	19859.198	20796.311	27487.575	59178.924
100.00	54151.043	54179.034	54414.202	56735.293	75315.957
1000.00	148367.282	148373.858	148439.594	149094.914	155454.702

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.1

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.025	0.038	0.093	0.251	0.688
0.10	0.068	0.069	0.104	0.255	0.688
1.00	0.189	0.188	0.189	0.286	0.697
10.00	0.518	0.518	0.514	0.518	0.784
100.00	1.419	1.419	1.418	1.408	1.419
1000.00	3.889	3.889	3.889	3.885	3.859
D= 1000.0					
0.01	1.575	2.385	5.813	15.721	43.018
0.10	4.283	4.315	6.534	15.927	43.074
1.00	11.817	11.736	11.822	17.904	43.640
10.00	32.407	32.386	32.158	32.393	49.057
100.00	88.802	88.794	88.720	88.112	88.757
1000.00	243.320	243.318	243.297	243.092	241.427
D=100000.0					
0.01	98.527	149.210	363.694	983.608	2691.532
0.10	268.001	269.964	408.836	996.521	2695.086
1.00	739.388	734.324	739.702	1120.212	2730.469
10.00	2027.628	2025.924	2012.048	2026.782	3069.380
100.00	5556.179	5555.702	5551.032	5513.011	5553.384
1000.00	15224.060	15223.929	15222.624	15209.829	15105.651

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.1

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.017	0.057	0.161	0.441	1.210
0.10	0.013	0.047	0.156	0.440	1.210
1.00	0.022	0.036	0.128	0.427	1.206
10.00	0.055	0.059	0.098	0.350	1.170
100.00	0.150	0.152	0.163	0.268	0.969
1000.00	0.412	0.412	0.415	0.446	0.733
D= 1000.0					
0.01	1.066	3.560	10.049	27.621	75.704
0.10	0.814	2.920	9.754	27.534	75.680
1.00	1.356	2.231	8.000	26.725	75.443
10.00	3.461	3.716	6.113	21.920	73.226
100.00	9.413	9.483	10.182	16.749	60.059
1000.00	25.773	25.792	25.985	27.899	45.892
D=100000.0					
0.01	66.670	222.723	628.742	1728.166	4736.669
0.10	50.944	182.676	610.262	1722.753	4735.176
1.00	84.857	139.586	500.533	1672.117	4720.342
10.00	216.556	232.509	382.466	1371.462	4581.599
100.00	588.965	593.364	637.074	1047.957	3757.805
1000.00	1612.557	1613.764	1625.819	1745.584	2871.402

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.1

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.155	0.316	0.791	2.034	5.218
0.10	0.316	0.404	0.819	2.042	5.220
1.00	0.791	0.819	1.048	2.114	5.239
10.00	2.034	2.042	2.114	2.702	5.425
100.00	5.218	5.220	5.239	5.425	6.920
1000.00	13.294	13.294	13.299	13.347	13.816
D= 1000.0					
0.01	9.719	19.748	49.473	127.269	326.483
0.10	19.748	25.308	51.249	127.738	326.602
1.00	49.473	51.249	65.592	132.294	327.797
10.00	127.269	127.738	132.294	169.066	339.406
100.00	326.483	326.602	327.797	339.406	432.974
1000.00	831.753	831.783	832.085	835.103	864.426
D=100000.0					
0.01	608.085	1235.612	3095.432	7962.972	20427.393
0.10	1235.612	1583.485	3206.532	7992.299	20434.887
1.00	3095.432	3206.532	4103.970	8277.414	20509.616
10.00	7962.972	7992.299	8277.414	10578.108	21236.019
100.00	20427.393	20434.887	20509.616	21236.019	27090.390
1000.00	52041.179	52043.073	52062.007	52250.785	54085.464

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.1

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	-0.008	0.019	0.068	0.190	0.522
0.10	-0.055	-0.022	0.051	0.186	0.521
1.00	-0.167	-0.152	-0.061	0.141	0.508
10.00	-0.463	-0.458	-0.416	-0.167	0.386
100.00	-1.269	-1.268	-1.255	-1.141	-0.459
1000.00	-3.477	-3.477	-3.473	-3.439	-3.125
D= 1000.0					
0.01	-0.509	1.175	4.236	11.900	32.687
0.10	-3.469	-1.395	3.219	11.607	32.606
1.00	-10.461	-9.505	-3.823	8.821	31.803
10.00	-28.946	-28.663	-26.045	-10.474	24.169
100.00	-79.389	-79.311	-78.538	-71.363	-28.698
1000.00	-217.547	-217.526	-217.312	-215.193	-195.535
D=100000.0					
0.01	-31.857	73.513	265.048	744.258	2045.738
0.10	-217.058	-87.288	201.425	726.231	2040.090
1.00	-654.531	-594.738	-239.168	551.905	1989.873
10.00	-1811.072	-1793.415	-1629.582	-655.321	1512.217
100.00	-4967.214	-4962.338	-4913.958	-4465.055	-1795.579
1000.00	-13611.503	-13610.166	-13596.805	-13464.245	-12234.250

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (Q0,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 0.1

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.147	0.334	0.858	2.221	5.740
0.10	0.260	0.382	0.871	2.227	5.741
1.00	0.624	0.667	0.987	2.255	5.747
10.00	1.571	1.583	1.698	2.535	5.811
100.00	3.949	3.952	3.984	4.284	6.461
1000.00	9.817	9.817	9.826	9.908	10.691
D= 1000.0					
0.01	9.210	20.923	53.709	139.169	359.169
0.10	16.279	23.913	54.468	139.345	359.208
1.00	39.012	41.743	61.770	141.115	359.600
10.00	98.323	99.074	106.253	158.592	363.576
100.00	247.094	247.291	249.259	268.043	404.276
1000.00	614.206	614.257	614.773	619.909	668.891
D=100000.0					
0.01	576.228	1309.124	3360.479	8197.531	22472.530
0.10	1018.554	1496.197	3407.957	8718.530	22474.977
1.00	2440.900	2611.794	3864.802	8829.319	22499.489
10.00	6151.900	6198.883	6647.832	9922.787	22748.238
100.00	15460.179	15472.550	15595.658	16770.965	25294.811
1000.00	38429.676	38432.907	38465.202	38736.540	41851.214

CHAPTER 6

QUADRATIC BACKORDER COSTS: PERIOD OF GRACE 1.

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (Q,R)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.033	2.059	5.053	12.789	32.472
0.10	2.059	2.623	5.231	12.835	32.483
1.00	5.053	5.231	6.663	13.286	32.601
10.00	12.789	12.835	13.286	16.925	33.748
100.00	32.472	32.483	32.601	33.748	42.989
1000.00	82.475	82.478	82.508	82.808	85.719
D= 1000.0					
0.01	56.709	113.078	277.463	702.207	1782.957
0.10	113.078	144.042	287.219	704.756	1783.606
1.00	277.463	287.219	365.867	729.536	1790.081
10.00	702.207	704.756	729.536	929.301	1853.021
100.00	1782.957	1783.606	1790.081	1853.021	2360.426
1000.00	4528.545	4528.710	4530.360	4546.806	4706.674
D=100000.0					
0.01	3113.808	6208.914	15234.972	38556.860	97898.768
0.10	6208.914	7909.073	15770.642	38696.828	97934.424
1.00	15234.972	15770.642	20089.046	40057.430	98289.943
10.00	38556.860	38696.828	40057.430	51026.176	101745.872
100.00	97898.768	97934.424	98289.943	101745.872	129606.486
1000.00	248653.811	248662.870	248753.438	249656.455	258434.516

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.810	3.504	8.272	20.113	49.059
0.10	3.504	4.417	8.550	20.183	49.076
1.00	8.272	8.550	10.778	20.861	49.246
10.00	20.113	20.183	20.861	26.298	50.902
100.00	49.059	49.076	49.246	50.902	64.167
1000.00	119.699	119.793	119.745	126.160	124.200
D= 1000.0					
0.01	99.401	192.398	454.180	1104.364	2693.710
0.10	192.398	242.538	469.450	1108.200	2694.649
1.00	454.180	469.450	591.794	1145.458	2704.009
10.00	1104.364	1108.200	1145.456	1443.977	2794.919
100.00	2693.710	2694.649	2704.609	2794.919	3523.303
1000.00	6572.424	6572.653	6574.944	6597.782	6819.601
D=100000.0					
0.01	5457.919	10564.187	24938.187	60638.549	147906.512
0.10	10564.187	13817.324	25776.617	60849.176	147958.061
1.00	24938.187	25776.617	32494.269	62894.946	148471.990
10.00	60638.549	60849.176	62894.946	79286.018	153463.669
100.00	147906.512	147958.061	148471.990	153463.669	193457.883
1000.00	360879.338	360891.890	361017.668	362271.655	374451.353

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (Q,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.775	3.579	8.514	20.720	50.543
0.10	3.281	4.330	8.733	20.774	50.556
1.00	7.669	8.005	10.566	21.309	50.690
10.00	18.627	18.712	19.532	25.781	51.995
100.00	45.429	45.450	45.657	47.657	62.905
1000.00	110.841	110.847	110.897	111.404	116.283
D= 1000.0					
0.01	97.445	196.528	467.493	1137.680	2775.204
0.10	180.133	237.767	479.529	1140.683	2775.938
1.00	421.083	439.524	580.151	1170.050	2783.266
10.00	1022.770	1027.444	1072.439	1415.567	2854.922
100.00	2494.414	2495.559	2506.962	2616.751	3453.984
1000.00	6086.091	6086.371	6089.164	6116.988	6384.874
D=100000.0					
0.01	5350.538	10790.987	25669.145	62467.621	152381.158
0.10	9890.754	13055.313	26330.009	62632.714	152421.484
1.00	23120.892	24133.440	31854.965	64245.222	152823.822
10.00	56158.364	56414.976	58385.594	77726.114	156758.343
100.00	136963.547	137026.409	137652.541	143680.850	189651.718
1000.00	334175.709	334191.054	334344.438	335872.199	350581.274

DEMAND FOLLOWS A NORMAL DISTRIBUTION

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	1.700	3.351	7.937	19.308	47.096
0.10	3.228	4.148	8.176	19.367	47.111
1.00	7.590	7.876	10.120	19.948	47.256
10.00	18.448	18.523	19.218	24.693	48.674
100.00	44.996	45.014	45.190	46.891	60.252
1000.00	109.786	109.790	109.833	110.262	114.415
D= 1000.0					
0.01	93.336	183.978	435.830	1060.151	2585.967
0.10	177.239	227.739	448.906	1063.426	2586.768
1.00	416.768	432.463	555.684	1095.331	2594.758
10.00	1012.958	1016.914	1055.207	1355.869	2672.607
100.00	2470.649	2471.618	2481.271	2574.710	3308.321
1000.00	6028.147	6028.383	6030.747	6054.302	6282.292
D=100000.0					
0.01	5124.892	10101.877	23930.606	56210.877	141990.550
0.10	9731.845	12504.737	24648.579	58390.680	142034.540
1.00	22883.951	23745.703	30511.558	60142.533	142473.258
10.00	55619.600	55836.841	57939.514	74448.202	146747.781
100.00	135658.636	135711.823	136241.892	141372.415	181653.613
1000.00	330994.089	331007.072	331136.848	332430.217	344948.692

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.110	0.153	0.334	0.905	1.962
0.10	0.276	0.270	0.374	0.815	1.965
1.00	0.681	0.674	0.658	0.913	1.990
10.00	1.665	1.663	1.644	1.605	2.228
100.00	4.062	4.062	4.057	4.011	3.915
1000.00	9.913	9.912	9.911	9.898	9.786
D= 1000.0					
0.01	6.065	8.420	18.369	44.213	107.743
0.10	15.159	14.799	20.544	44.775	107.881
1.00	37.412	36.988	36.110	50.128	109.250
10.00	91.406	91.286	90.250	88.108	122.311
100.00	223.061	223.032	222.738	220.209	214.982
1000.00	544.277	544.270	544.197	543.480	537.310
D=100000.0					
0.01	333.027	462.311	1007.581	2427.673	5915.962
0.10	832.342	812.587	1128.038	2458.496	5923.521
1.00	2054.236	2030.915	1982.711	2752.413	5998.731
10.00	5018.950	5012.335	4955.432	4837.815	6715.888
100.00	12247.876	12246.237	12230.098	12091.255	11804.270
1000.00	29885.219	29884.818	29880.819	29841.438	29502.661

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.075	0.229	0.577	1.412	3.446
0.10	0.053	0.183	0.558	1.407	3.445
1.00	0.079	0.129	0.446	1.361	3.433
10.00	0.179	0.192	0.314	1.087	3.320
100.00	0.433	0.436	0.468	0.766	2.653
1000.00	1.055	1.056	1.064	1.142	1.868
D= 1000.0					
0.01	4.110	12.550	31.663	77.529	189.236
0.10	2.894	10.027	30.623	77.257	189.170
1.00	4.315	7.062	24.466	74.719	188.507
10.00	9.812	10.529	17.230	59.698	182.315
100.00	23.765	23.942	25.691	42.042	145.663
1000.00	57.944	57.987	58.417	62.686	102.582
D=100000.0					
0.01	225.646	689.111	1738.539	4256.944	10390.608
0.10	158.909	550.576	1681.430	4242.034	10386.944
1.00	236.940	387.738	1343.407	4102.689	10350.564
10.00	538.765	578.135	946.080	3277.912	10010.561
100.00	1304.911	1314.586	1410.648	2308.435	7998.105
1000.00	3181.620	3183.982	3207.589	3441.982	5632.582

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.778	1.445	3.218	7.324	16.587
0.10	1.445	1.794	3.319	7.348	16.592
1.00	3.218	3.319	4.115	7.575	16.645
10.00	7.324	7.348	7.575	9.379	17.154
100.00	16.587	16.592	16.645	17.154	21.179
1000.00	37.224	37.225	37.236	37.353	38.481
D= 1000.0					
0.01	42.692	79.319	176.717	402.157	910.754
0.10	79.319	98.496	182.231	403.444	911.043
1.00	176.717	182.231	225.927	415.923	913.928
10.00	402.157	403.444	415.923	514.675	941.897
100.00	910.754	911.043	913.928	941.897	1162.878
1000.00	2043.879	2043.943	2044.584	2050.976	2112.928
D=100000.0					
0.01	2344.111	4355.273	9703.215	22081.689	50007.744
0.10	4355.273	5408.250	10005.976	22152.348	50023.636
1.00	9703.215	10005.976	12405.224	22837.516	50182.047
10.00	22081.689	22152.348	22837.516	28259.842	51717.797
100.00	50007.744	50023.636	50182.047	51717.797	63851.396
1000.00	112225.497	112229.019	112264.230	112615.290	116016.837

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (M,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	-0.036	0.075	0.242	0.607	1.484
0.10	-0.223	-0.087	0.184	0.592	1.480
1.00	-0.603	-0.545	-0.212	0.448	1.443
10.00	-1.486	-1.471	-1.330	-0.517	1.093
100.00	-3.630	-3.626	-3.589	-3.245	-1.262
1000.00	-8.857	-8.856	-8.847	-8.756	-7.917
D= 1000.0					
0.01	-1.956	4.131	13.312	33.315	81.493
0.10	-12.265	-4.772	10.079	32.482	81.289
1.00	-33.097	-29.926	-11.643	24.592	79.257
10.00	-81.594	-80.757	-73.019	-28.409	60.603
100.00	-199.296	-199.090	-197.047	-178.167	-69.319
1000.00	-486.333	-486.282	-485.780	-480.793	-434.728
D=100000.0					
0.01	-107.381	226.800	730.958	1829.272	4474.646
0.10	-673.433	-262.010	553.292	1783.538	4463.424
1.00	-1817.295	-1643.177	-639.305	1350.276	4351.833
10.00	-4480.185	-4434.201	-4009.352	-1559.903	3294.673
100.00	-10942.966	-10931.652	-10819.449	-9782.819	-3806.165
1000.00	-26703.599	-26700.836	-26673.230	-26399.456	-23870.079

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SAVINGS OF (Q,R) OVER (QQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

PERIOD OF GRACE = 0.25 OF LEAD TIME

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0 HOLDING COST = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.742	1.520	3.461	7.931	18.071
0.10	1.221	1.707	3.502	7.939	18.073
1.00	2.616	2.774	3.903	8.023	18.088
10.00	5.838	5.877	6.245	8.856	18.247
100.00	12.957	12.966	13.056	13.909	19.916
1000.00	28.366	28.369	28.389	28.597	30.564
D= 1000.0					
0.01	40.736	83.450	190.030	435.472	992.247
0.10	67.055	93.725	192.310	435.926	992.332
1.00	143.620	152.305	214.284	440.514	993.185
10.00	320.563	322.687	342.902	486.266	1001.901
100.00	711.457	711.953	716.881	763.730	1093.559
1000.00	1557.546	1557.661	1558.805	1570.183	1678.200
D=100000.0					
0.01	2236.730	4582.073	10434.173	23910.961	54482.390
0.10	3681.840	5146.240	10559.367	23935.886	54487.060
1.00	7885.920	8362.799	11765.919	24187.792	54533.879
10.00	17601.504	17718.148	18828.164	26699.938	55012.470
100.00	39064.779	39091.985	39362.598	41934.978	60045.236
1000.00	85521.898	85528.183	85591.000	86215.744	92146.758

CHAPTER 7

QUADRATIC BACKORDER COSTS: PERIOD OF GRACE 2.

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (Q,R)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.
D= 10.0					
0.01	0.056	0.130	0.388	1.197	3.708
0.10	0.130	0.175	0.404	1.202	3.710
1.00	0.388	0.404	0.542	1.253	3.726
10.00	1.197	1.202	1.253	1.681	3.886
100.00	3.708	3.710	3.726	3.886	5.212
1000.00	11.494	11.495	11.500	11.550	12.045
D= 1000.0					
0.01	3.612	8.347	24.814	76.585	237.309
0.10	8.347	11.198	25.877	76.923	237.414
1.00	24.814	25.877	34.712	80.218	238.461
10.00	76.585	76.923	80.218	107.609	248.675
100.00	237.309	237.414	238.461	248.675	333.586
1000.00	735.627	735.659	735.985	739.229	770.893
D=100000.0					
0.01	231.175	534.229	1588.085	4901.458	15187.806
0.10	534.229	716.644	1656.110	4923.063	15194.520
1.00	1588.085	1656.110	2221.595	5133.940	15261.494
10.00	4901.458	4923.063	5133.940	6886.945	15915.214
100.00	15187.806	15194.520	15261.494	15915.214	21349.530
1000.00	47080.116	47082.198	47103.012	47310.632	49337.163

LEAD TIME IS GAMMA DISTRIBUTED

MODEL(M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.110	0.248	0.713	2.130	6.387
0.10	0.248	0.329	0.743	2.139	6.390
1.00	0.713	0.743	0.988	2.228	6.417
10.00	2.130	2.139	2.228	2.963	6.684
100.00	6.387	6.390	6.417	6.684	8.890
1000.00	19.161	19.162	19.170	19.252	20.052
D= 1000.0					
0.01	7.025	15.844	45.635	136.321	408.787
0.10	15.844	21.074	47.532	136.904	408.962
1.00	45.635	47.532	63.221	142.595	410.712
10.00	136.321	136.904	142.595	189.663	427.785
100.00	408.787	408.962	410.712	427.785	568.989
1000.00	1226.307	1226.360	1226.886	1232.137	1283.354
D=100000.0					
0.01	449.571	1014.008	2920.621	8724.523	26162.339
0.10	1014.008	1348.714	3042.024	8761.862	26173.569
1.00	2920.621	3042.024	4046.142	9126.073	26285.586
10.00	8724.523	8761.862	9126.073	12138.427	27378.218
100.00	26162.339	26173.569	26285.586	27378.218	36415.280
1000.00	78483.646	78487.016	78520.708	78856.758	82134.653

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (nQ,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.112	0.267	0.777	2.323	6.968
0.10	0.235	0.335	0.800	2.331	6.970
1.00	0.668	0.706	1.004	2.401	6.992
10.00	1.993	2.005	2.119	3.013	7.204
100.00	5.977	5.980	6.016	6.356	9.038
1000.00	17.929	17.930	17.941	18.047	19.069
D= 1000.0					
0.01	7.141	17.076	49.717	148.691	445.933
0.10	15.067	21.422	51.229	149.152	446.072
1.00	42.777	45.201	64.267	153.687	447.457
10.00	127.580	128.332	135.604	192.802	461.061
100.00	382.514	382.741	384.997	406.812	578.405
1000.00	1147.475	1147.543	1148.223	1154.992	1220.435
D=100000.0					
0.01	457.011	1092.885	3181.920	9516.206	28539.734
0.10	964.294	1371.034	3278.654	9545.760	28548.617
1.00	2737.759	2892.882	4113.102	9835.262	28637.280
10.00	8165.138	8213.277	8678.647	12339.307	29597.886
100.00	24480.922	24495.415	24639.832	26035.942	37017.920
1000.00	73438.417	73442.766	73486.246	73919.497	78107.827

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (M,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.102	0.234	0.678	2.025	6.074
0.10	0.224	0.305	0.703	2.033	6.076
1.00	0.641	0.671	0.914	2.109	6.100
10.00	1.915	1.924	2.014	2.742	6.326
100.00	5.742	5.745	5.773	6.042	8.227
1000.00	17.226	17.227	17.235	17.318	18.125
D= 1000.0					
0.01	6.500	14.994	43.375	129.630	386.743
0.10	14.321	19.501	44.983	130.124	388.891
1.00	41.050	42.962	58.504	134.949	390.371
10.00	122.560	123.150	128.887	175.512	404.846
100.00	367.503	367.681	369.450	386.660	526.536
1000.00	1102.457	1102.510	1103.043	1108.351	1159.979
D=100000.0					
0.01	416.028	959.635	2775.973	8296.345	24879.543
0.10	916.526	1248.085	2878.904	8327.918	24889.036
1.00	2627.203	2749.579	3744.255	8636.711	24983.755
10.00	7843.858	7881.609	8248.738	11232.765	25910.132
100.00	23520.217	23531.575	23644.826	24746.213	33698.295
1000.00	70557.243	70560.651	70594.725	70934.479	74238.638

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,T) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.008	0.013	0.035	0.105	0.313
0.10	0.024	0.025	0.040	0.106	0.314
1.00	0.072	0.071	0.074	0.119	0.318
10.00	0.215	0.215	0.214	0.221	0.358
100.00	0.645	0.645	0.645	0.643	0.663
1000.00	1.935	1.935	1.935	1.934	1.928
D= 1000.0					
0.01	0.524	0.850	2.260	6.690	20.044
0.10	1.523	1.572	2.549	6.780	20.071
1.00	4.585	4.569	4.717	7.646	20.341
10.00	13.760	13.754	13.708	14.151	22.939
100.00	41.283	41.281	41.262	41.125	42.453
1000.00	123.850	123.849	123.843	123.786	123.375
D=100000.0					
0.01	33.543	54.374	144.648	428.178	1282.796
0.10	97.482	100.629	163.121	433.944	1284.533
1.00	293.418	292.445	301.887	489.362	1301.831
10.00	880.665	880.253	877.335	905.662	1468.086
100.00	2642.122	2641.994	2640.760	2632.005	2716.985
1000.00	7926.403	7926.365	7925.983	7922.279	7896.015

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,T) OVER (Q,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.010	0.033	0.099	0.298	0.894
0.10	0.012	0.030	0.098	0.297	0.893
1.00	0.027	0.035	0.090	0.293	0.892
10.00	0.078	0.081	0.105	0.270	0.878
100.00	0.235	0.235	0.243	0.315	0.810
1000.00	0.703	0.704	0.706	0.729	0.945
D= 1000.0					
0.01	0.640	2.082	6.343	19.060	57.190
0.10	0.746	1.921	6.246	19.029	57.181
1.00	1.727	2.239	5.763	18.738	57.086
10.00	5.020	5.182	6.717	17.290	56.215
100.00	15.011	15.060	15.547	20.152	51.869
1000.00	45.018	45.033	45.180	46.641	60.456
D=100000.0					
0.01	40.983	133.250	405.947	1219.860	3660.192
0.10	47.768	122.949	399.750	1217.842	3659.581
1.00	110.556	143.303	368.847	1199.251	3653.525
10.00	321.280	331.669	429.910	1106.542	3597.754
100.00	960.705	963.840	995.006	1289.730	3319.625
1000.00	2881.174	2882.115	2891.520	2985.018	3869.189

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.
D= 10.0					
0.01	0.053	0.117	0.325	0.933	2.679
0.10	0.117	0.154	0.338	0.937	2.680
1.00	0.325	0.338	0.445	0.975	2.691
10.00	0.933	0.937	0.975	1.282	2.799
100.00	2.679	2.680	2.691	2.799	3.678
1000.00	7.667	7.667	7.670	7.702	8.007
D= 1000.0					
0.01	3.412	7.497	20.821	59.735	171.477
0.10	7.497	9.876	21.655	59.981	171.548
1.00	20.821	21.655	28.509	62.377	172.251
10.00	59.735	59.981	62.377	82.054	179.109
100.00	171.477	171.548	172.251	179.109	235.402
1000.00	490.680	490.700	490.901	492.908	512.461
D=100000.0					
0.01	218.396	479.779	1332.536	3823.065	10974.533
0.10	479.779	632.070	1385.915	3838.799	10979.049
1.00	1332.536	1385.915	1824.547	3992.133	11024.092
10.00	3823.065	3838.799	3992.133	5251.482	11463.004
100.00	10974.533	10979.049	11024.092	11463.004	15065.750
1000.00	31403.530	31404.818	31417.695	31546.126	32797.490

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,T) OVER (QQ,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.002	0.019	0.064	0.193	0.580
0.10	-0.012	0.005	0.058	0.191	0.580
1.00	-0.045	-0.036	0.016	0.173	0.574
10.00	-0.137	-0.134	-0.109	0.049	0.520
100.00	-0.411	-0.410	-0.402	-0.328	0.147
1000.00	-1.232	-1.232	-1.229	-1.205	-0.983
D= 1000.0					
0.01	0.116	1.232	4.083	12.370	37.147
0.10	-0.777	0.349	3.697	12.248	37.110
1.00	-2.857	-2.330	1.046	11.092	36.745
10.00	-8.740	-8.572	-6.991	3.139	33.276
100.00	-26.272	-26.221	-25.719	-20.973	9.416
1000.00	-78.832	-78.816	-78.663	-77.145	-62.919
D=100000.0					
0.01	7.440	78.877	261.299	791.683	2377.395
0.10	-49.714	22.320	236.630	783.898	2375.048
1.00	-182.862	-149.142	66.960	709.989	2351.694
10.00	-559.385	-548.585	-447.425	200.880	2129.668
100.00	-1681.417	-1678.154	-1645.754	-1342.275	602.640
1000.00	-5045.229	-5044.250	-5034.462	-4937.261	-4026.826

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (QQ,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.055	0.136	0.389	1.127	3.260
0.10	0.105	0.160	0.396	1.129	3.260
1.00	0.281	0.302	0.462	1.148	3.266
10.00	0.797	0.803	0.865	1.331	3.319
100.00	2.269	2.271	2.290	2.471	3.825
1000.00	6.435	6.436	6.441	6.496	7.024
D= 1000.0					
0.01	3.529	8.729	24.904	72.105	208.624
0.10	6.720	10.225	25.352	72.230	208.658
1.00	17.964	19.325	29.555	73.469	208.997
10.00	50.995	51.410	55.386	85.193	212.386
100.00	145.205	145.326	146.537	158.136	244.819
1000.00	411.848	411.884	412.238	415.764	449.542
D=100000.0					
0.01	225.836	558.656	1593.835	4614.748	13351.928
0.10	430.065	654.390	1622.544	4622.697	13354.697
1.00	1149.674	1236.773	1891.507	4702.022	13375.785
10.00	3263.680	3290.215	3544.708	5452.362	13592.672
100.00	9293.116	9300.895	9378.338	10120.729	15668.390
1000.00	26358.301	26360.568	26383.233	26608.865	28770.664

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (0,R)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.081	0.177	0.484	1.375	3.918
0.10	0.177	0.232	0.504	1.381	3.919
1.00	0.484	0.504	0.661	1.435	3.935
10.00	1.375	1.381	1.435	1.884	4.091
100.00	3.918	3.919	3.935	4.091	5.369
1000.00	11.164	11.165	11.169	11.215	11.659
D= 1000.0					
0.01	5.880	12.768	35.003	99.353	283.040
0.10	12.768	16.758	36.389	99.758	283.156
1.00	35.003	36.389	47.760	103.708	284.311
10.00	99.353	99.758	103.708	136.115	295.566
100.00	283.040	283.156	284.311	295.566	387.927
1000.00	806.631	806.664	806.994	810.286	842.365
D=100000.0					
0.01	424.823	922.483	2528.958	7178.247	20449.635
0.10	922.483	1210.746	2629.077	7207.531	20458.003
1.00	2528.958	2629.077	3450.627	7492.870	20541.462
10.00	7178.247	7207.531	7492.870	9834.287	21354.679
100.00	20449.635	20458.003	20541.462	21354.679	28027.719
1000.00	58279.073	58281.459	58305.309	58543.167	60860.836

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL(M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.159	0.336	0.801	2.441	6.709
0.10	0.336	0.437	0.925	2.450	6.711
1.00	0.891	0.925	1.293	2.544	6.738
10.00	2.441	2.450	2.544	3.308	6.995
100.00	6.709	6.711	6.738	6.995	9.097
1000.00	18.449	18.449	18.457	18.529	19.237
D= 1000.0					
0.01	11.492	24.303	64.372	176.329	484.714
0.10	24.303	31.602	66.832	177.024	484.906
1.00	64.372	66.832	86.907	183.789	486.816
10.00	176.329	177.024	183.789	238.994	505.419
100.00	484.714	484.906	486.816	505.419	657.232
1000.00	1332.911	1332.964	1333.491	1338.745	1389.903
D=100000.0					
0.01	830.283	1755.867	4650.907	12739.797	35020.599
0.10	1755.867	2283.278	4828.634	12789.793	35034.441
1.00	4650.907	4828.634	6279.014	13278.743	35172.482
10.00	12739.797	12789.993	13278.743	17267.287	36516.542
100.00	35020.599	35034.441	35172.482	36516.542	47485.040
1000.00	96302.839	96306.647	96344.713	96724.324	100420.492

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (00,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.161	0.360	0.964	2.644	7.268
0.10	0.321	0.444	0.991	2.651	7.270
1.00	0.839	0.883	1.221	2.725	7.291
10.00	2.296	2.309	2.429	3.358	7.495
100.00	6.311	6.514	6.349	6.679	9.235
1000.00	17.354	17.355	17.364	17.458	18.367
D= 1000.0					
0.01	11.667	26.038	69.657	191.011	525.131
0.10	23.203	32.084	71.605	191.558	525.281
1.00	60.652	63.809	88.230	196.913	526.783
10.00	165.892	166.792	175.475	242.633	541.512
100.00	455.955	456.203	458.679	482.557	667.241
1000.00	1253.807	1253.876	1254.559	1261.368	1327.033
D=100000.0					
0.01	842.927	1881.256	5032.738	13800.569	37940.691
0.10	1676.443	2318.048	5173.453	13840.929	37951.564
1.00	4382.094	4610.218	6374.633	14226.997	38060.081
10.00	11985.706	12050.758	12678.101	17530.242	39124.241
100.00	32942.734	32960.691	33139.584	34864.777	48208.164
1000.00	90587.578	90592.518	90641.901	91133.857	95878.136

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (M,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.148	0.320	0.850	2.330	6.405
0.10	0.306	0.407	0.879	2.338	6.408
1.00	0.808	0.843	1.120	2.418	6.430
10.00	2.213	2.223	2.318	3.080	6.649
100.00	6.082	6.085	6.112	6.374	8.170
1000.00	16.726	16.727	16.734	16.808	17.528
D= 1000.0					
0.01	10.700	23.100	61.431	168.345	462.787
0.10	22.143	29.425	63.525	168.935	462.949
1.00	58.393	60.893	80.918	174.695	464.571
10.00	159.872	160.586	167.455	222.524	480.410
100.00	439.453	439.648	441.596	460.503	611.942
1000.00	1208.442	1208.496	1209.033	1214.390	1266.382
D=100000.0					
0.01	773.968	1668.982	4438.384	12162.940	33436.237
0.10	1599.822	2125.936	4589.701	12205.555	33448.085
1.00	4218.887	4399.512	5816.324	12621.679	33565.277
10.00	11550.761	11601.939	12098.657	16077.390	34709.617
100.00	31750.474	31764.592	31905.332	33271.307	44212.822
1000.00	87309.921	87313.804	87352.628	87739.663	91496.095

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,T) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10+D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.011	0.017	0.041	0.111	0.303
0.10	0.030	0.030	0.046	0.112	0.304
1.00	0.083	0.082	0.082	0.126	0.308
10.00	0.228	0.228	0.226	0.228	0.346
100.00	0.626	0.626	0.626	0.622	0.627
1000.00	1.723	1.723	1.723	1.721	1.710
D= 1000.0					
0.01	0.792	1.203	2.941	7.984	21.928
0.10	2.160	2.178	3.307	8.089	21.956
1.00	5.980	5.939	5.989	9.094	22.245
10.00	16.457	16.444	16.333	16.469	25.009
100.00	45.261	45.257	45.220	44.917	45.290
1000.00	124.469	124.468	124.458	124.355	123.521
D=100000.0					
0.01	57.215	86.884	212.523	576.857	1584.262
0.10	156.044	157.342	238.932	584.438	1586.357
1.00	432.020	429.122	432.690	657.064	1607.205
10.00	1189.036	1188.054	1180.086	1189.897	1806.926
100.00	3270.125	3269.849	3267.150	3245.235	3272.210
1000.00	8992.919	8992.843	8992.085	8984.662	8924.397

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,1) OVER (00,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.013	0.041	0.114	0.314	0.863
0.10	0.015	0.037	0.112	0.313	0.863
1.00	0.031	0.048	0.101	0.308	0.861
10.00	0.083	0.086	0.111	0.278	0.846
100.00	0.228	0.229	0.236	0.305	0.765
1000.00	0.628	0.628	0.633	0.659	0.839
D= 1000.0					
0.01	0.967	2.938	8.226	22.666	62.344
0.10	1.060	2.659	8.080	22.622	62.332
1.00	2.259	2.916	7.312	22.219	62.212
10.00	6.020	6.212	8.029	20.100	61.102
100.00	16.502	16.555	17.083	22.055	55.299
1000.00	45.365	45.380	45.526	46.978	60.651
D=100000.0					
0.01	69.859	212.273	594.354	1637.629	4504.054
0.10	76.621	192.113	583.752	1634.474	4503.480
1.00	163.207	210.707	528.310	1605.318	4494.304
10.00	434.945	448.819	579.443	1452.852	4414.625
100.00	1192.259	1196.099	1234.252	1593.469	3995.342
1000.00	3277.657	3278.714	3289.273	3394.194	4382.041

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10.0

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.078	0.160	0.406	1.065	2.791
0.10	0.160	0.205	0.421	1.069	2.792
1.00	0.406	0.421	0.542	1.108	2.803
10.00	1.065	1.069	1.108	1.424	2.905
100.00	2.791	2.792	2.803	2.905	3.727
1000.00	7.284	7.284	7.287	7.314	7.578
D= 1000.0					
0.01	5.612	11.535	29.370	76.976	201.674
0.10	11.535	14.845	30.444	77.266	201.750
1.00	29.370	30.444	39.147	80.081	202.505
10.00	76.976	77.266	80.081	102.879	209.853
100.00	201.674	201.750	202.505	209.853	269.305
1000.00	526.281	526.300	526.497	528.459	547.538
D=100000.0					
0.01	405.460	833.384	2121.949	5561.550	14570.964
0.10	833.384	1072.531	2199.557	5582.463	14576.438
1.00	2121.949	2199.557	2828.386	5785.873	14631.019
10.00	5561.550	5582.463	5785.873	7433.000	15161.863
100.00	14570.964	14576.438	14631.019	15161.863	19457.324
1000.00	38023.766	38025.188	38039.405	38181.157	39559.656

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,T) OVER (Q0,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.002	0.024	0.073	0.203	0.559
0.10	=0.015	0.007	0.066	0.201	0.559
1.00	=0.051	-0.042	0.018	0.182	0.553
10.00	=0.144	-0.142	-0.115	0.050	0.500
100.00	=0.398	-0.397	-0.389	-0.316	0.139
1000.00	=1.095	-1.095	-1.092	-1.071	-0.870
D= 1000.0					
0.01	0.175	1.735	5.285	14.682	40.416
0.10	=1.099	0.461	4.773	14.533	40.375
1.00	=3.721	-3.023	1.323	13.125	39.967
10.00	-10.437	-10.232	-8.313	3.640	36.093
100.00	-28.759	-28.702	-28.137	-22.862	10.009
1000.00	-79.104	-79.088	-78.932	-77.377	=62.870
D=10000.0					
0.01	12.644	125.389	381.831	1060.772	2920.092
0.10	-79.424	34.771	344.820	1050.036	2917.123
1.00	-268.813	-218.415	95.620	948.254	2887.599
10.00	-754.091	-739.235	-600.642	262.954	2607.699
100.00	-2077.865	=2073.750	=2032.897	-1651.766	723.124
1000.00	-5715.262	=5714.129	-5702.812	-5590.467	-4542.356

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (00,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.080	0.184	0.480	1.269	3.351
0.10	0.144	0.212	0.487	1.271	3.351
1.00	0.355	0.380	0.560	1.290	3.356
10.00	0.921	0.928	0.903	1.474	3.404
100.00	2.393	2.395	2.413	2.588	3.866
1000.00	6.189	6.190	6.195	6.243	6.708
D= 1000.0					
0.01	5.787	13.270	34.654	91.658	242.091
0.10	10.435	15.326	35.216	91.799	242.125
1.00	25.649	27.421	40.471	93.206	242.472
10.00	66.539	67.034	71.768	106.518	245.945
100.00	172.915	173.048	174.368	186.991	279.314
1000.00	447.177	447.212	447.565	451.082	484.669
D=100000.0					
0.01	418.103	958.773	2503.780	6622.322	17491.056
0.10	753.960	1107.302	2544.376	6632.499	17493.561
1.00	1853.136	1981.141	2924.006	6734.127	17518.619
10.00	4807.459	4843.227	5185.231	7695.954	17769.567
100.00	12493.099	12502.688	12598.122	13510.098	20180.446
1000.00	32308.504	32311.059	32336.592	32590.690	35017.300

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (Q,R)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.131	0.273	0.710	1.910	5.155
0.10	0.273	0.353	0.737	1.917	5.157
1.00	0.710	0.737	0.954	1.989	5.177
10.00	1.910	1.917	1.989	2.575	5.371
100.00	5.155	5.157	5.177	5.371	6.951
1000.00	13.918	13.919	13.924	13.978	14.502
D= 1000.0					
0.01	10.595	22.104	57.522	154.712	417.561
0.10	22.104	28.606	59.680	155.311	417.723
1.00	57.522	59.680	77.237	161.136	419.339
10.00	154.712	155.311	161.136	208.541	435.067
100.00	417.561	417.723	419.339	435.067	563.059
1000.00	1127.370	1127.414	1127.851	1132.214	1174.661
D=100000.0					
0.01	858.191	1790.399	4659.318	12531.679	33822.407
0.10	1790.399	2317.117	4834.077	12580.158	33835.533
1.00	4659.318	4834.077	6256.215	13052.007	33966.426
10.00	12531.679	12580.158	13052.007	16891.781	35240.420
100.00	33822.407	33835.533	33966.426	35240.420	45607.809
1000.00	91316.953	91320.498	91355.938	91709.351	95149.134

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL(M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.257	0.520	1.306	3.383	8.793
0.10	0.520	0.667	1.353	3.396	8.796
1.00	1.306	1.353	1.734	3.518	8.829
10.00	3.383	3.396	3.518	4.509	9.147
100.00	8.793	8.796	8.829	9.147	11.722
1000.00	22.860	22.861	22.869	22.954	23.782
D= 1000.0					
0.01	20.778	42.154	105.786	274.025	712.198
0.10	42.154	54.023	109.601	275.044	712.464
1.00	105.786	109.601	140.461	284.962	715.116
10.00	274.025	275.044	284.962	365.199	740.900
100.00	712.198	712.464	715.116	740.900	949.516
1000.00	1851.647	1851.716	1852.407	1859.309	1926.341
D=100000.0					
0.01	1683.038	3414.482	8568.692	22196.002	57688.067
0.10	3414.482	4375.900	8877.652	22278.599	57709.604
1.00	8568.692	8877.652	11377.339	23081.896	57924.357
10.00	22196.002	22278.599	23081.896	29581.081	60012.929
100.00	57688.067	57709.604	57924.357	60012.929	76910.811
1000.00	149983.372	149988.973	150044.970	150603.327	156033.616

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (00, R T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.251	0.532	1.347	3.492	9.078
0.10	0.485	0.653	1.384	3.502	9.080
1.00	1.204	1.261	1.698	3.599	9.106
10.00	3.116	3.131	3.278	4.414	9.357
100.00	8.098	8.102	8.141	8.524	11.476
1000.00	21.053	21.054	21.064	21.167	22.162
D= 1000.0					
0.01	20.341	43.124	109.111	282.889	735.303
0.10	39.282	52.886	112.123	283.689	735.512
1.00	97.550	102.134	137.503	291.520	737.592
10.00	262.396	253.631	265.548	357.507	757.952
100.00	655.906	656.229	659.441	690.425	929.519
1000.00	1705.272	1705.356	1706.195	1714.547	1795.104
D=100000.0					
0.01	1647.593	3493.065	8838.008	22914.024	59559.578
0.10	3181.861	4283.741	9081.970	22978.822	59576.463
1.00	7001.589	8272.838	11137.727	23613.123	59744.037
10.00	20444.047	20544.132	21509.380	28958.091	61394.119
100.00	53128.401	53154.522	53414.744	55924.388	75291.037
1000.00	138127.048	138133.842	138201.757	138878.334	145403.408

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (M,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10.0

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.240	0.496	1.250	3.238	8.416
0.10	0.477	0.623	1.290	3.240	8.419
1.00	1.191	1.239	1.621	3.353	8.447
10.00	3.084	3.097	3.222	4.215	8.719
100.00	8.015	8.018	8.052	8.377	10.958
1000.00	20.838	20.839	20.848	20.935	21.781
D= 1000.0					
0.01	19.423	40.181	101.215	262.290	681.728
0.10	38.607	50.500	104.471	263.158	681.954
1.00	96.480	100.377	131.301	271.624	684.210
10.00	249.803	250.848	260.980	341.381	706.223
100.00	649.214	649.487	652.205	678.549	887.591
1000.00	1687.807	1687.957	1688.666	1695.733	1764.227
D=10000.0					
0.01	1573.275	3254.670	8198.379	21245.483	55219.929
0.10	3127.131	4090.516	8462.142	21315.786	55238.255
1.00	7814.881	8130.541	10635.341	22001.570	55421.045
10.00	20234.020	20318.699	21139.408	27651.887	57204.082
100.00	52586.367	52608.452	52828.594	54062.460	71894.907
1000.00	136718.809	136724.553	136781.976	137354.345	142902.397

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,T) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.017	0.024	0.056	0.145	0.376
0.10	0.044	0.043	0.063	0.147	0.377
1.00	0.115	0.114	0.113	0.165	0.382
10.00	0.299	0.299	0.296	0.294	0.428
100.00	0.778	0.777	0.777	0.770	0.765
1000.00	2.022	2.022	2.021	2.019	2.001
D= 1000.0					
0.01	1.355	1.973	4.572	11.735	30.471
0.10	3.548	3.523	5.130	11.887	30.510
1.00	9.306	9.224	9.160	13.337	30.905
10.00	24.222	24.196	23.981	23.817	34.677
100.00	62.984	62.977	62.911	62.351	61.925
1000.00	163.760	163.758	163.741	163.568	162.114
D=100000.0					
0.01	109.763	159.812	370.312	950.519	2468.138
0.10	287.350	285.384	415.510	962.812	2471.349
1.00	753.811	747.111	741.998	1080.326	2503.312
10.00	1961.981	1959.909	1942.488	1929.194	2808.847
100.00	5101.700	5101.152	5095.762	5050.469	5015.904
1000.00	13264.563	13264.420	13262.994	13248.982	13131.219

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,T) OVER (00,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.011	0.036	0.097	0.254	0.661
0.10	0.008	0.029	0.094	0.253	0.661
1.00	0.013	0.022	0.077	0.246	0.659
10.00	0.032	0.034	0.056	0.199	0.639
100.00	0.083	0.083	0.089	0.147	0.518
1000.00	0.215	0.215	0.216	0.232	0.381
D= 1000.0					
0.01	0.917	2.943	7.897	20.599	53.576
0.10	0.676	2.385	7.652	20.531	53.558
1.00	1.070	1.757	6.202	19.896	53.381
10.00	2.593	2.783	4.568	16.126	51.729
100.00	6.692	6.742	7.236	11.876	41.928
1000.00	17.386	17.399	17.528	18.815	30.877
D=100000.0					
0.01	74.317	238.395	639.629	1668.541	4339.649
0.10	54.730	193.225	619.828	1663.035	4338.208
1.00	86.709	142.297	502.386	1611.353	4323.897
10.00	210.027	225.442	369.972	1306.204	4190.037
100.00	542.034	546.070	586.150	961.927	3396.130
1000.00	1408.239	1409.289	1419.781	1523.990	2501.011

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.126	0.248	0.596	1.473	3.638
0.10	0.243	0.314	0.616	1.478	3.639
1.00	0.596	0.616	0.781	1.529	3.652
10.00	1.473	1.478	1.529	1.934	3.776
100.00	3.638	3.639	3.652	3.776	4.771
1000.00	8.942	8.942	8.945	8.976	9.280
D= 1000.0					
0.01	10.183	20.050	48.264	119.313	294.638
0.10	20.050	25.417	49.921	119.734	294.742
1.00	48.264	49.921	63.224	123.826	295.777
10.00	119.313	119.734	123.826	156.658	305.833
100.00	294.638	294.742	295.777	305.833	386.457
1000.00	724.277	724.302	724.556	727.086	751.660
D=100000.0					
0.01	824.847	1624.083	3909.374	9664.323	23865.660
0.10	1624.083	2058.783	4043.575	9698.441	23874.071
1.00	3909.374	4043.575	5121.124	10029.888	23957.930
10.00	9664.323	9698.441	10029.888	12689.300	24772.509
100.00	23865.660	23874.071	23957.930	24772.509	31303.002
1000.00	58666.419	58668.475	58689.032	58893.976	60884.481

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,T) OVER (QQ,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	-0.005	0.012	0.041	0.109	0.285
0.10	-0.035	-0.014	0.031	0.107	0.285
1.00	-0.102	-0.092	-0.037	0.081	0.277
10.00	-0.267	-0.264	-0.240	-0.095	0.211
100.00	-0.695	-0.694	-0.687	-0.623	-0.247
1000.00	-1.807	-1.807	-1.805	-1.787	-1.620
D= 1000.0					
0.01	-0.438	0.970	3.325	8.864	23.105
0.10	-2.872	-1.138	2.522	8.645	23.048
1.00	-8.236	-7.467	-2.958	6.558	22.476
10.00	-21.629	-21.413	-19.414	-7.691	17.052
100.00	-56.292	-56.236	-55.674	-50.476	-19.997
1000.00	-146.374	-146.360	-146.213	-144.758	-131.237
D=100000.0					
0.01	-35.445	78.584	269.317	718.023	1871.512
0.10	-232.621	-92.158	204.318	700.223	1866.859
1.00	-667.102	-604.814	-239.611	531.327	1820.580
10.00	-1751.955	-1734.466	-1572.516	-622.990	1381.189
100.00	-4559.666	-4555.082	-4509.613	-4088.541	-1619.774
1000.00	-11856.324	-11855.131	-11843.213	-11724.993	-10630.208

DEMAND FOLLOWS A NORMAL DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (QQ,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.120	0.260	0.637	1.582	3.923
0.10	0.212	0.300	0.647	1.585	3.923
1.00	0.494	0.524	0.744	1.610	3.929
10.00	1.206	1.214	1.289	1.839	3.986
100.00	2.943	2.945	2.964	3.153	4.524
1000.00	7.135	7.135	7.140	7.189	7.660
D= 1000.0					
0.01	9.746	21.021	51.589	128.177	317.743
0.10	17.179	24.279	52.443	128.379	317.789
1.00	40.028	42.454	60.266	130.384	318.253
10.00	97.684	98.321	104.412	148.967	322.885
100.00	238.346	238.506	240.103	255.358	366.460
1000.00	577.902	577.943	578.343	582.333	620.423
D=100000.0					
0.01	789.401	1702.667	4178.691	10382.345	25737.172
0.10	1391.462	1966.625	4247.893	10398.664	25740.930
1.00	3242.272	3438.762	4881.512	10561.115	25778.510
10.00	7012.368	7963.974	8457.372	12066.310	26153.698
100.00	19305.994	19318.989	19448.318	20683.968	29603.228
1000.00	46810.095	46813.344	46845.819	47168.983	50254.274

CHAPTER 8

CONTINUOUS LEAD TIMES

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL (Q,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.067	0.149	0.421	1.236	3.637
0.10	0.149	0.197	0.439	1.241	3.639
1.00	0.421	0.439	0.581	1.292	3.654
10.00	1.236	1.241	1.292	1.710	3.804
100.00	3.637	3.639	3.654	3.804	5.035
1000.00	10.712	10.712	10.717	10.762	11.201
D= 1000.0					
0.01	5.665	12.604	35.662	104.584	307.871
0.10	12.604	16.684	37.119	105.024	308.001
1.00	35.662	37.119	49.135	109.315	309.297
10.00	104.584	105.024	109.315	144.701	321.933
100.00	307.871	308.001	309.297	321.933	426.145
1000.00	906.643	906.681	907.064	910.880	948.093
D=100000.0					
0.01	479.504	1066.806	3018.429	8852.028	26058.224
0.10	1066.806	1412.138	3141.742	8889.273	26069.222
1.00	3018.429	3141.742	4158.748	9252.431	26178.909
10.00	8852.028	8889.273	9252.431	12247.513	27248.409
100.00	26058.224	26069.222	26178.909	27248.409	36068.924
1000.00	76738.231	76741.470	76773.858	77096.886	80246.564

SUPPLY FOLLOWS A GAMMA DISTPIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.130	0.283	0.775	2.199	6.266
0.10	0.283	0.371	0.806	2.208	6.268
1.00	0.775	0.806	1.057	2.296	6.294
10.00	2.199	2.208	2.296	3.013	6.543
100.00	6.266	6.268	6.294	6.543	8.588
1000.00	17.857	17.857	17.865	17.938	18.648
D= 1000.0					
0.01	11.017	23.923	65.585	186.159	530.335
0.10	23.923	31.399	68.182	186.918	530.553
1.00	65.585	68.182	89.488	194.318	532.717
10.00	186.159	186.918	194.318	255.040	553.807
100.00	530.335	530.553	532.717	553.807	726.864
1000.00	1511.394	1511.456	1512.075	1518.243	1578.349
D=100000.0					
0.01	032.501	2024.880	5551.143	15756.479	44887.595
0.10	2024.880	2657.627	5770.908	15820.758	44905.964
1.00	5551.143	5770.908	7574.236	16447.087	45089.160
10.00	15756.479	15820.758	16447.087	21586.572	46874.197
100.00	44887.595	44905.964	45089.160	46874.197	61521.729
1000.00	127024.410	127929.647	127981.998	128504.106	133591.464

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL (Q,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.132	0.304	0.841	2.389	6.807
0.10	0.269	0.377	0.865	2.396	6.809
1.00	0.729	0.768	1.074	2.466	6.830
10.00	2.065	2.076	2.188	3.061	7.027
100.00	5.881	5.885	5.918	6.237	8.723
1000.00	16.761	16.762	16.771	16.865	17.775
D= 1000.0					
0.01	11.191	25.694	71.168	202.229	576.183
0.10	22.804	31.894	73.229	202.828	576.354
1.00	61.665	64.991	90.899	208.702	578.060
10.00	174.763	175.745	185.225	259.062	594.802
100.00	497.793	498.074	500.873	527.893	738.326
1000.00	1418.630	1418.710	1419.511	1427.488	1504.494
D=100000.0					
0.01	947.206	2174.770	6023.640	17116.701	48768.129
0.10	1930.131	2699.538	6198.093	17167.375	48782.599
1.00	5219.315	5500.872	7693.684	17664.566	48927.018
10.00	14791.923	14875.049	15677.486	21927.000	50344.013
100.00	42133.203	42156.982	42393.889	44680.835	62491.950
1000.00	120072.849	120079.629	120147.398	120822.583	127340.379

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.121	0.268	0.738	2.096	5.973
0.10	0.257	0.345	0.764	2.104	5.975
1.00	0.700	0.732	0.982	2.178	5.996
10.00	1.987	1.996	2.085	2.799	6.208
100.00	5.661	5.664	5.690	5.942	7.976
1000.00	16.133	16.134	16.141	16.216	16.935
D= 1000.0					
0.01	10.232	22.699	62.485	177.439	505.517
0.10	21.726	29.162	64.692	178.083	505.701
1.00	59.289	61.919	83.111	184.372	507.536
10.00	168.201	168.973	176.466	236.867	525.461
100.00	479.153	479.373	481.573	502.934	675.071
1000.00	1365.523	1365.586	1366.214	1372.482	1433.363
D=100000.0					
0.01	866.055	1921.238	5288.743	15018.435	42786.975
0.10	1838.875	2468.258	5475.529	15072.916	42802.540
1.00	5018.197	5240.795	7034.535	15605.258	42957.812
10.00	14236.552	14301.862	14936.266	20048.424	44474.965
100.00	40555.503	40574.173	40760.307	42568.358	57138.008
1000.00	115577.860	115583.183	115636.392	116166.875	121319.819

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.009	0.014	0.037	0.103	0.293
0.10	0.026	0.026	0.041	0.104	0.294
1.00	0.074	0.074	0.075	0.118	0.298
10.00	0.212	0.212	0.211	0.215	0.335
100.00	0.605	0.605	0.604	0.601	0.612
1000.00	1.723	1.723	1.723	1.722	1.713
D= 1000.0					
0.01	0.785	1.224	3.100	8.720	24.818
0.10	2.198	2.237	3.490	8.836	24.851
1.00	6.297	6.263	6.376	9.946	25.181
10.00	17.958	17.945	17.850	18.173	28.346
100.00	51.183	51.179	51.144	50.872	51.793
1000.00	145.871	145.870	145.860	145.761	144.986
D=100000.0					
0.01	66.445	103.642	262.400	738.044	2100.620
0.10	186.004	189.369	295.378	747.841	2103.425
1.00	532.946	530.113	539.701	841.829	2131.348
10.00	1519.927	1518.896	1510.821	1538.148	2399.211
100.00	4332.093	4331.792	4328.853	4305.839	4383.721
1000.00	12346.550	12346.464	12345.607	12337.231	12271.642

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.011	0.035	0.103	0.293	0.835
0.10	0.013	0.032	0.101	0.292	0.835
1.00	0.028	0.036	0.092	0.287	0.833
10.00	0.078	0.080	0.103	0.262	0.819
100.00	0.220	0.221	0.228	0.295	0.747
1000.00	0.627	0.628	0.630	0.650	0.840
D= 1000.0					
0.01	0.959	2.995	8.683	24.790	70.666
0.10	1.078	2.733	8.537	24.745	70.653
1.00	2.376	3.073	7.788	24.330	70.525
10.00	6.562	6.772	8.757	22.195	69.341
100.00	18.640	18.700	19.300	24.958	63.255
1000.00	53.107	53.124	53.296	55.006	71.131
D=100000.0					
0.01	81.151	253.531	734.898	2098.266	5981.153
0.10	91.255	231.281	722.564	2094.458	5980.059
1.00	201.118	260.077	659.150	2059.308	5969.206
10.00	555.372	573.187	741.220	1878.576	5869.027
100.00	1577.700	1582.809	1633.582	2112.477	5353.942
1000.00	4494.989	4496.446	4511.006	4655.708	6020.560

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10×D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.063	0.134	0.354	0.964	2.628
0.10	0.134	0.174	0.369	0.968	2.629
1.00	0.354	0.367	0.477	1.004	2.640
10.00	0.964	0.968	1.004	1.304	2.740
100.00	2.628	2.629	2.640	2.740	3.553
1000.00	7.145	7.145	7.148	7.176	7.446
D= 1000.0					
0.01	5.352	11.319	29.923	81.574	222.464
0.10	11.319	14.715	31.063	81.894	222.551
1.00	29.923	31.063	40.353	85.003	223.420
10.00	81.574	81.894	85.003	110.339	231.874
100.00	222.464	222.551	223.420	231.874	300.718
1000.00	604.752	604.775	605.011	607.363	630.256
D=100000.0					
0.01	452.997	958.074	2532.714	6904.451	18829.371
0.10	958.074	1245.488	2629.165	6931.485	18836.743
1.00	2532.714	2629.165	3415.488	7194.656	18910.251
10.00	6904.451	6931.485	7194.656	9339.059	19625.788
100.00	18829.371	18836.743	18910.251	19625.788	25452.805
1000.00	51186.180	51188.177	51208.141	51407.220	53344.697

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (M,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.002	0.021	0.066	0.190	0.542
0.10	-0.013	0.006	0.060	0.188	0.541
1.00	-0.046	-0.038	0.017	0.176	0.536
10.00	-0.135	-0.132	-0.107	0.048	0.484
100.00	-0.384	-0.384	-0.376	-0.306	0.135
1000.00	-1.096	-1.096	-1.094	-1.072	-0.873
D= 1000.0					
0.01	0.174	1.771	5.582	16.071	45.848
0.10	-1.119	0.495	5.047	15.910	45.801
1.00	-3.920	-3.190	1.411	14.384	45.343
10.00	-11.396	-11.173	-9.093	4.022	40.995
100.00	-32.542	-32.479	-31.844	-25.914	11.463
1000.00	-92.764	-92.746	-92.564	-90.755	-73.855
D=100000.0					
0.01	14.706	149.890	472.497	1360.223	3880.533
0.10	-94.749	41.912	427.186	1346.617	3876.635
1.00	-331.828	-270.035	119.449	1217.479	3837.858
10.00	-964.555	-945.709	-769.601	340.428	3469.816
100.00	-2754.392	-2748.983	-2695.271	-2193.362	970.221
1000.00	-7851.561	-7850.018	-7834.601	-7681.523	-6251.081

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (Q,R) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.065	0.155	0.419	1.154	3.170
0.10	0.121	0.180	0.427	1.156	3.171
1.00	0.307	0.329	0.493	1.174	3.175
10.00	0.829	0.836	0.897	1.351	3.224
100.00	2.244	2.246	2.263	2.433	3.688
1000.00	6.049	6.049	6.054	6.104	6.574
D= 1000.0					
0.01	5.526	13.090	35.506	97.646	268.312
0.10	10.200	15.210	36.110	97.804	268.353
1.00	26.003	27.873	41.764	99.387	268.763
10.00	70.178	70.720	75.910	114.361	272.869
100.00	189.922	190.073	191.576	205.960	312.181
1000.00	511.987	512.029	512.447	516.608	556.401
D=100000.0					
0.01	467.703	1107.964	3005.211	8264.674	22709.905
0.10	863.325	1287.400	3056.351	8278.102	22713.377
1.00	2200.886	2359.130	3534.936	8412.135	22748.109
10.00	5939.896	5985.776	6425.055	9679.487	23095.604
100.00	16074.979	16087.760	16214.980	17432.426	26423.026
1000.00	43334.619	43338.158	43373.540	43725.697	47093.916

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL (O,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.097	0.202	0.526	1.420	3.843
0.10	0.202	0.261	0.546	1.425	3.844
1.00	0.526	0.546	0.708	1.479	3.859
10.00	1.420	1.425	1.479	1.916	4.005
100.00	3.843	3.844	3.859	4.005	5.186
1000.00	10.404	10.405	10.409	10.449	10.842
D= 1090.0					
0.01	9.222	19.279	50.305	135.676	367.199
0.10	19.279	24.969	52.198	136.202	367.342
1.00	50.305	52.198	67.602	141.325	368.767
10.00	135.676	136.202	141.325	183.034	382.638
100.00	367.199	367.342	368.767	382.638	495.563
1000.00	994.153	994.192	994.579	998.437	1035.993
D=100000.0					
0.01	881.168	1842.113	4806.721	12963.905	35086.119
0.10	1842.113	2385.763	4987.522	13014.197	35099.773
1.00	4806.721	4987.522	6459.452	13503.715	35235.938
10.00	12963.905	13014.197	13503.715	17488.967	36561.307
100.00	35086.119	35099.773	35235.938	36561.307	47351.379

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.189	0.384	0.968	2.520	6.581
0.10	0.384	0.493	1.003	2.529	6.584
1.00	0.968	1.003	1.287	2.621	6.608
10.00	2.520	2.529	2.621	3.363	6.848
100.00	6.581	6.584	6.608	6.848	8.787
1000.00	17.193	17.193	17.200	17.264	17.890
D= 1000.0					
0.01	18.024	36.696	92.515	240.794	628.840
0.10	36.696	47.087	95.868	241.695	629.075
1.00	92.515	95.868	123.014	250.454	631.428
10.00	240.794	241.695	250.454	321.375	654.312
100.00	628.840	629.075	631.428	654.312	839.592
1000.00	1642.782	1642.843	1643.460	1640.606	1709.390
D=100000.0					
0.01	1722.172	3506.303	8839.850	23008.058	60086.007
0.10	3506.303	4499.174	9160.216	23094.108	60108.553
1.00	8839.850	9160.216	11754.092	23931.064	60333.357
10.00	23008.058	23094.108	23931.064	30707.566	62519.901
100.00	60086.007	60108.553	60333.357	62519.906	80223.51

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.191	0.410	1.044	2.719	7.101
0.10	0.368	0.500	1.071	2.726	7.103
1.00	0.915	0.960	1.306	2.799	7.122
10.00	2.378	2.391	2.508	3.412	7.311
100.00	6.210	6.213	6.245	6.553	8.914
1000.00	16.223	16.224	16.232	16.316	17.121
D= 1000.0					
0.01	18.284	39.179	99.710	259.789	673.513
0.10	35.118	47.767	102.355	260.493	678.697
1.00	87.431	91.746	124.792	267.403	680.539
10.00	227.243	228.414	239.687	326.019	698.590
100.00	593.366	593.673	596.732	626.183	851.724
1000.00	1550.089	1550.169	1550.971	1558.961	1635.903
D=100000.0					
0.01	1747.059	3743.577	9527.393	24822.941	64832.296
0.10	3355.567	4564.190	9730.095	24890.315	64849.934
1.00	8354.106	8766.420	11923.948	25550.497	65025.948
10.00	21713.244	21825.101	22902.272	31151.313	66750.674
100.00	56696.512	56725.850	57018.077	59832.185	81382.806

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.176	0.366	0.926	2.412	6.298
0.10	0.352	0.460	0.956	2.420	6.300
1.00	0.883	0.918	1.203	2.498	6.321
10.00	2.296	2.306	2.400	3.143	6.526
100.00	5.996	5.999	6.024	6.269	8.211
1000.00	15.665	15.666	15.672	15.738	16.377
D= 1000.0					
0.01	16.843	34.970	88.407	230.432	601.803
0.10	33.593	44.001	91.359	231.198	602.004
1.00	84.337	87.761	114.953	238.675	604.006
10.00	219.408	220.331	229.276	300.314	623.533
100.00	572.961	573.203	575.614	598.983	784.571
1000.00	1496.798	1496.861	1497.493	1503.791	1564.843
D=100000.0					
0.01	1609.312	3341.390	8455.944	22017.926	57502.65
0.10	3209.808	4204.327	8729.380	22091.153	57521.83
1.00	8058.459	8385.625	10983.805	22805.506	57713.13
10.00	20964.555	21052.724	21907.444	28695.190	59579.38
100.00	54746.792	54769.901	55000.240	57233.199	74966.18

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.012	0.018	0.042	0.108	0.283
0.10	0.032	0.032	0.047	0.110	0.283
1.00	0.086	0.085	0.084	0.123	0.287
10.00	0.224	0.224	0.222	0.220	0.322
100.00	0.585	0.585	0.584	0.579	0.576
1000.00	1.528	1.528	1.528	1.526	1.513
D= 1000.0					
0.01	1.181	1.726	4.018	10.362	27.036
0.10	3.103	3.086	4.509	10.497	27.072
1.00	8.178	8.107	8.062	11.780	27.422
10.00	21.387	21.364	21.179	21.061	30.774
100.00	55.878	55.872	55.815	55.329	55.021
1000.00	145.984	145.982	145.967	145.816	144.547
D=100000.0					
0.01	112.860	164.913	383.936	990.132	2583.354
0.10	296.494	294.847	430.836	1002.955	2586.720
1.00	781.391	774.591	770.287	1125.558	2620.221
10.00	2043.503	2041.384	2023.620	2012.375	2940.521
100.00	5339.215	5338.652	5333.117	5286.707	5257.331

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.015	0.044	0.117	0.307	0.803
0.10	0.016	0.039	0.115	0.307	0.803
1.00	0.032	0.042	0.103	0.301	0.801
10.00	0.082	0.095	0.109	0.269	0.785
100.00	0.214	0.214	0.221	0.285	0.703
1000.00	0.558	0.558	0.560	0.577	0.744
D= 1000.0					
0.01	1.442	4.209	11.213	29.356	76.710
0.10	1.525	3.766	10.996	29.295	76.693
1.00	3.094	3.985	9.830	28.728	76.533
10.00	7.836	8.083	10.412	25.705	75.052
100.00	20.405	20.470	21.118	27.200	67.154
1000.00	53.291	53.308	53.479	55.171	71.060
D=100000.0					
0.01	137.747	402.187	1071.450	2805.015	7329.643
0.10	145.759	359.863	1050.714	2799.163	7328.102
1.00	295.647	380.795	940.143	2744.991	7312.812
10.00	748.689	772.378	994.827	2456.123	7171.290
100.00	1949.719	1955.949	2017.537	2596.987	6416.621

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.092	0.182	0.442	1.100	2.738
0.10	0.182	0.231	0.457	1.104	2.739
1.00	0.442	0.457	0.580	1.142	2.749
10.00	1.100	1.104	1.142	1.448	2.843
100.00	2.738	2.739	2.749	2.843	3.600
1000.00	6.788	6.789	6.791	6.815	7.048
D= 1000.0					
0.01	8.802	17.417	42.209	105.119	261.640
0.10	17.417	22.118	43.670	105.493	261.733
1.00	42.209	43.670	55.412	109.129	262.661
10.00	105.119	105.493	109.129	138.341	271.674
100.00	261.640	261.733	262.661	271.674	344.028
1000.00	648.628	648.651	648.881	651.169	673.397
D=100000.0					
0.01	841.004	1664.190	4033.129	10044.153	24999.888
0.10	1664.190	2113.411	4172.694	10079.911	25008.779
1.00	4033.129	4172.694	5294.040	10427.350	25097.419
10.00	10044.153	10079.911	10427.350	13218.599	25958.599
100.00	24999.888	25008.779	25097.419	25956.599	32872.137

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (M,T) OVER (OC,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.003	0.026	0.075	0.199	0.520
0.10	-0.017	0.007	0.068	0.197	0.519
1.00	-0.053	-0.043	0.019	0.177	0.514
10.00	-0.142	-0.139	-0.113	0.049	0.463
100.00	-0.371	-0.371	-0.363	-0.294	0.127
1000.00	-0.970	-0.970	-0.968	-0.949	-0.769
D= 1000.0					
0.01	0.260	2.483	7.196	18.994	49.673
0.10	-1.578	0.680	6.487	18.798	49.622
1.00	-5.084	-4.121	1.778	16.948	49.111
10.00	-13.551	-13.281	-10.767	4.644	44.278
100.00	-35.473	-35.402	-34.697	-28.129	12.133
1000.00	-92.693	-92.674	-92.488	-90.645	-73.486
D=100000.0					
0.01	24.887	237.274	687.543	1814.883	4746.289
0.10	-150.735	65.016	619.879	1796.207	4741.382
1.00	-485.744	-393.796	169.865	1619.433	4692.59:
10.00	-1294.814	-1269.007	-1028.793	443.747	4230.769
100.00	-3389.496	-3382.702	-3315.280	-2687.720	1159.290

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (Q,R) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.095	0.208	0.517	1.299	3.258
0.10	0.166	0.239	0.525	1.301	3.259
1.00	0.389	0.414	0.599	1.319	3.263
10.00	0.958	0.965	1.029	1.496	3.307
100.00	2.367	2.369	2.386	2.549	3.727
1000.00	5.818	5.819	5.823	5.866	6.278
D= 1000.0					
0.01	9.062	19.900	49.405	124.113	311.313
0.10	15.839	22.799	50.157	124.291	311.355
1.00	37.126	39.549	57.100	126.077	311.772
10.00	91.568	92.212	98.362	142.985	315.952
100.00	226.167	226.331	227.964	243.545	356.161
1000.00	555.936	555.977	556.392	560.524	599.911
D=100000.0					
0.01	865.890	1901.464	4720.872	11859.036	29746.177
0.10	1513.454	2178.428	4792.573	11876.118	29750.161
1.00	3547.385	3778.898	5464.495	12046.783	29790.010
10.00	8749.339	8810.904	9398.557	13662.346	30189.347
100.00	21610.393	21626.077	21782.139	23270.878	34031.427

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL (0,R)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=10
D= 10.0					
0.01	0.155	0.312	0.772	1.972	5.0
0.10	0.312	0.398	0.799	1.980	5.0
1.00	0.772	0.799	1.021	2.050	5.0
10.00	1.972	1.980	2.050	2.618	5.2
100.00	5.057	5.059	5.077	5.258	6.7
1000.00	12.971	12.971	12.976	13.024	13.4
D= 1000.0					
0.01	16.617	33.375	82.670	211.274	541.7
0.10	33.375	42.623	85.608	212.049	541.9
1.00	82.670	85.608	109.327	219.584	543.9
10.00	211.274	212.049	219.584	280.425	563.2
100.00	541.718	541.918	543.906	563.234	719.2
1000.00	1389.457	1389.508	1390.019	1395.118	1444.6
D=100000.0					
0.01	1780.060	3575.260	8855.837	22632.198	58030.2
0.10	3575.260	4565.854	9170.542	22715.221	58051.5
1.00	8855.837	9170.542	11711.414	23522.440	58264.5
10.00	22632.198	22715.221	23522.440	30039.778	60335.0
100.00	58030.229	58051.587	58264.542	60335.059	77052.0
1000.00	148842.057	148847.537	148902.320	149448.550	154759.4

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL(M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	PC=10.0	RC=100
D= 10.0					
0.01	0.304	0.594	1.419	3.493	8.62
0.10	0.594	0.751	1.468	3.506	8.62
1.00	1.419	1.468	1.856	3.625	8.65
10.00	3.493	3.506	3.625	4.584	8.95
100.00	8.625	8.628	8.659	8.954	11.32
1000.00	21.304	21.304	21.312	21.387	22.11
D= 1000.0					
0.01	32.588	63.651	152.034	374.207	923.96
0.10	63.651	80.493	157.217	375.524	924.29
1.00	152.034	157.217	198.819	388.325	927.54
10.00	374.207	375.524	388.325	491.083	959.16
100.00	923.964	924.290	927.545	959.164	1212.97
1000.00	2282.110	2282.191	2282.997	2291.036	2369.13
D=100000.0					
0.01	3490.957	6818.402	16286.276	40085.953	98977.33
0.10	6818.402	8622.663	16841.454	40227.102	99012.30
1.00	16286.276	16841.454	21297.977	41598.391	99360.94
10.00	40085.953	40227.102	41598.391	52606.004	102748.02
100.00	98977.336	99012.304	99360.942	102748.027	129936.83
1000.00	244465.381	244474.020	244560.392	245421.526	253787.62

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.298	0.607	1.461	3.600	8.890
0.10	0.556	0.736	1.500	3.610	8.892
1.00	1.314	1.373	1.819	3.704	8.916
10.00	3.232	3.247	3.391	4.493	9.149
100.00	7.979	7.982	8.019	8.376	11.097
1000.00	19.707	19.708	19.717	19.808	20.688
D= 1000.0					
0.01	31.939	65.036	156.552	385.652	952.306
0.10	59.539	78.888	160.639	386.684	952.561
1.00	140.809	147.062	194.854	396.778	955.110
10.00	346.195	347.798	363.243	481.290	980.041
100.00	854.703	855.101	859.062	897.210	1188.786
1000.00	2111.019	2111.117	2112.100	2121.883	2216.109
D=100000.0					
0.01	3421.343	6966.812	16770.276	41312.036	102013.363
0.10	6377.993	8450.717	17208.026	41422.581	102040.729
1.00	15083.819	15753.643	20873.270	42503.824	102313.775
10.00	37085.248	37257.033	38911.497	51556.977	104984.445
100.00	91557.965	91600.563	92024.872	96111.399	127345.733
1000.00	226137.647	226148.173	226253.391	227301.435	237395.154

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

MODEL (M,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100
D= 10.0					
0.01	0.285	0.568	1.361	3.352	8.27
0.10	0.547	0.705	1.403	3.362	8.27
1.00	1.301	1.350	1.741	3.464	8.30
10.00	3.200	3.213	3.336	4.301	8.58
100.00	7.902	7.905	7.936	8.239	10.62
1000.00	19.516	19.517	19.525	19.602	20.36
D= 1000.0					
0.01	30.574	60.828	145.809	359.024	886.51
0.10	58.570	75.517	150.245	360.148	886.79
1.00	139.346	144.667	186.527	371.104	889.56
10.00	342.828	344.186	357.328	460.721	916.62
100.00	846.449	846.786	850.138	882.599	1137.96
1000.00	2090.647	2090.730	2091.561	2090.842	2180.02
D=100000.0					
0.01	3275.122	6516.019	15619.432	38459.573	94965.32
0.10	6274.129	8089.551	16094.567	38579.997	94995.14
1.00	14927.135	15497.099	19981.102	39753.581	95292.59
10.00	36724.614	36870.024	38277.835	49353.544	98191.31
100.00	90673.760	90709.797	91068.959	94546.252	121903.25
1000.00	223955.284	223964.188	224050.200	224940.329	233529.21

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (M,R,T) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.019	0.026	0.058	0.142	0.350
0.10	0.047	0.046	0.065	0.144	0.350
1.00	0.118	0.117	0.115	0.161	0.355
10.00	0.293	0.293	0.289	0.283	0.397
100.00	0.724	0.724	0.723	0.715	0.709
1000.00	1.787	1.787	1.787	1.785	1.765
D= 1000.0					
0.01	2.015	2.823	6.225	15.182	37.453
0.10	5.081	4.977	6.972	15.376	37.501
1.00	12.688	12.550	12.292	17.221	37.978
10.00	31.378	31.339	30.998	30.362	42.537
100.00	77.515	77.505	77.407	76.564	74.994
1000.00	191.464	191.461	191.437	191.194	189.114
D=100000.0					
0.01	215.835	302.383	666.844	1626.380	4012.015
0.10	544.273	533.112	746.887	1647.104	4017.159
1.00	1359.141	1344.355	1316.786	1844.810	4068.348
10.00	3361.339	3357.078	3320.556	3252.460	4556.680
100.00	8303.576	8302.507	8291.982	8201.774	8033.577
1000.00	20510.097	20509.833	20507.192	20481.197	20258.383

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (M,R,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.013	0.039	0.100	0.249	0.614
0.10	0.009	0.031	0.097	0.248	0.614
1.00	0.014	0.022	0.078	0.240	0.612
10.00	0.031	0.034	0.055	0.192	0.592
100.00	0.077	0.078	0.083	0.136	0.474
1000.00	0.190	0.190	0.192	0.206	0.337
D= 1000.0					
0.01	1.365	4.208	10.743	26.628	65.794
0.10	0.970	3.372	10.394	26.536	65.771
1.00	1.463	2.395	8.328	25.674	65.543
10.00	3.367	3.613	5.915	20.569	63.414
100.00	8.254	8.315	8.924	14.611	50.806
1000.00	20.373	20.388	20.539	22.041	36.089
D=100000.0					
0.01	146.221	450.793	1150.844	2852.463	7048.042
0.10	103.864	361.165	1113.458	2842.584	7045.554
1.00	156.684	256.544	892.078	2750.242	7021.182
10.00	360.634	387.009	633.663	2203.433	6793.098
100.00	884.205	890.766	955.913	1565.146	5442.479
1000.00	2182.364	2183.986	2200.191	2361.106	3865.912

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (Q,R) OVER (M,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.149	0.283	0.648	1.521	3.568
0.10	0.283	0.354	0.668	1.526	3.569
1.00	0.648	0.668	0.835	1.575	3.581
10.00	1.521	1.526	1.575	1.967	3.696
100.00	3.568	3.569	3.581	3.696	4.609
1000.00	8.333	8.333	8.336	8.363	8.630
D= 1000.0					
0.01	15.971	30.275	69.364	162.933	382.246
0.10	30.275	37.871	71.609	163.475	382.373
1.00	69.364	71.609	89.492	168.741	383.639
10.00	162.933	163.475	168.741	210.658	395.930
100.00	382.246	382.373	383.639	395.930	493.685
1000.00	892.654	892.683	892.978	895.918	924.439
D=100000.0					
0.01	1710.897	3243.142	7430.439	17453.756	40947.107
0.10	3243.142	4056.809	7670.912	17511.881	40960.718
1.00	7430.439	7670.912	9586.563	18075.951	41096.399
10.00	17463.756	17511.881	18075.951	22566.226	42412.967
100.00	40947.107	40960.718	41096.399	42412.967	52884.800
1000.00	95623.323	95626.483	95658.072	95972.975	99028.199

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (M,T) OVER (00,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	=0.606	0.013	0.042	0.107	0.265
0.10	=0.038	-0.015	0.032	0.104	0.264
1.00	=0.105	-0.095	-0.037	0.079	0.257
10.00	=0.261	-0.259	-0.234	-0.001	0.195
100.00	=0.647	-0.646	-0.639	-0.578	-0.226
1000.00	=1.597	-1.597	-1.595	-1.579	-1.429
D= 1000.0					
0.01	=0.650	1.385	4.515	11.446	28.342
0.10	=4.111	-1.605	3.422	11.160	28.271
1.00	-11.225	-10.155	-3.965	8.452	27.565
10.00	-28.012	-27.726	-25.082	-9.793	20.877
100.00	-69.261	-69.189	-68.483	-61.954	=24.188
1000.00	-171.091	-171.074	-170.898	-169.153	=153.025
D=100000.0					
0.01	-69.614	148.410	484.000	1226.083	3036.026
0.10	-440.409	-171.946	366.572	1195.479	3028.425
1.00	-1202.457	-1087.811	-424.707	905.432	2952.834
10.00	-3060.705	-2970.068	-2686.894	-1049.027	2236.418
100.00	-7419.371	=7411.741	-7336.069	-6636.628	-2591.095
1000.00	-18327.733	-18325.847	-18307.001	-18120.091	-16302.473

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

SAVINGS OF (Q,R) OVER (QQ,R,T)

LEAD TIME IS 0.1 OF A YEAR

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.143	0.296	0.690	1.628	3.833
0.10	0.244	0.339	0.700	1.630	3.833
1.00	0.543	0.574	0.798	1.654	3.839
10.00	1.259	1.267	1.341	1.875	3.891
100.00	2.922	2.924	2.942	3.118	4.383
1000.00	6.736	6.736	6.741	6.784	7.291
D= 1000.0					
0.01	15.322	31.661	73.882	174.378	410.587
0.10	26.164	36.266	75.031	174.635	410.643
1.00	58.139	61.454	85.527	177.193	411.204
10.00	134.921	135.749	143.658	200.865	416.807
100.00	312.985	313.183	315.153	333.976	469.497
1000.00	721.563	721.610	722.081	726.765	771.413
D=100000.0					
0.01	1641.283	3391.552	7914.439	18679.839	43903.134
0.10	2802.733	3884.863	8037.484	18707.360	43969.143
1.00	6227.982	6583.101	9161.856	18981.384	44649.233
10.00	14463.051	14541.812	15389.057	21517.199	44649.386
100.00	33527.736	33548.977	33760.330	35776.339	50293.703
1000.00	77295.590	77300.636	77351.072	77852.884	82635.728

CHAPTER 9

VARIABLE SUPPLY

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (Q,R)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.082	0.176	0.472	1.311	3.656
0.10	0.176	0.229	0.490	1.316	3.658
1.00	0.472	0.490	0.640	1.367	3.672
10.00	1.311	1.316	1.367	1.785	3.815
100.00	3.656	3.658	3.672	3.815	4.979
1000.00	10.201	10.201	10.205	10.246	10.643
D= 1000.0					
0.01	6.955	14.867	39.932	110.967	309.474
0.10	14.867	19.406	41.480	111.410	309.598
1.00	39.932	41.480	54.142	115.730	310.835
10.00	110.967	111.410	115.730	151.057	322.886
100.00	309.474	309.598	310.835	322.886	421.449
1000.00	863.397	863.432	863.778	867.230	900.852
D=100000.0					
0.01	588.713	1258.382	3379.851	9392.247	26193.868
0.10	1258.382	1642.510	3510.885	9429.783	26204.369
1.00	3379.851	3510.885	4582.602	9795.370	26309.094
10.00	9392.247	9429.783	9795.370	12785.458	27329.081
100.00	26193.868	26204.369	26309.094	27329.081	35671.429
1000.00	73077.960	73080.891	73110.189	73402.373	76248.136

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL(M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.160	0.333	0.868	2.334	6.298
0.10	0.333	0.431	0.900	2.343	6.301
1.00	0.868	0.900	1.165	2.431	6.325
10.00	2.334	2.343	2.431	3.146	6.562
100.00	6.298	6.301	6.325	6.562	8.493
1000.00	17.005	17.006	17.012	17.078	17.719
D= 1000.0					
0.01	13.526	28.220	73.438	197.520	533.096
0.10	28.220	36.522	76.193	198.284	533.303
1.00	73.438	76.193	98.608	205.721	535.366
10.00	197.520	198.284	205.721	266.242	555.446
100.00	533.096	533.303	535.366	555.446	718.853
1000.00	1439.304	1439.359	1439.918	1445.488	1499.705
D=100000.0					
0.01	1144.882	2388.507	6215.828	16718.061	45121.253
0.10	2388.507	3091.182	6448.968	16782.735	45138.764
1.00	6215.828	6448.968	8346.191	17412.213	45313.385
10.00	16718.061	16782.735	17412.213	22534.716	47012.974
100.00	45121.253	45138.764	45313.385	47012.974	60843.733
1000.00	121822.654	121827.383	121974.663	122346.139	126935.030

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (Q,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.162	0.357	0.938	2.524	6.814
0.10	0.319	0.438	0.963	2.531	6.816
1.00	0.818	0.860	1.182	2.601	6.835
10.00	2.198	2.210	2.323	3.193	7.022
100.00	5.931	5.934	5.966	6.271	8.620
1000.00	16.014	16.014	16.023	16.108	16.931
D= 1000.0					
0.01	13.729	30.197	79.354	213.656	576.708
0.10	26.966	37.068	81.532	214.256	576.871
1.00	69.269	72.808	100.082	220.136	578.490
10.00	186.034	187.025	196.580	270.222	594.367
100.00	502.023	502.291	504.968	530.767	729.600
1000.00	1355.389	1355.461	1356.187	1363.414	1433.071
D=100000.0					
0.01	1161.998	2555.873	6716.517	18083.827	48812.598
0.10	2282.382	3137.396	6900.858	18134.596	48826.333
1.00	5862.894	6162.431	8470.968	18632.317	48963.409
10.00	15745.907	15829.813	16638.564	22871.614	50307.257
100.00	42491.206	42513.948	42740.495	44924.122	61753.358
1000.00	114720.113	114726.256	114787.660	115399.335	121295.130

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (M,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.149	0.317	0.829	2.230	6.019
0.10	0.304	0.402	0.856	2.238	6.021
1.00	0.788	0.822	1.086	2.312	6.041
10.00	2.120	2.129	2.218	2.933	6.243
100.00	5.720	5.723	5.748	5.989	7.918
1000.00	15.444	15.445	15.452	15.519	16.171
D= 1000.0					
0.01	12.611	26.848	70.142	188.735	509.407
0.10	25.755	34.049	72.489	189.384	509.583
1.00	66.735	69.539	91.932	195.721	511.336
10.00	179.403	180.184	187.755	248.216	528.448
100.00	484.177	484.389	486.496	506.939	670.184
1000.00	1307.221	1307.279	1307.849	1313.539	1368.734
D=100000.0					
0.01	1067.369	2272.408	5936.830	15974.489	43116.247
0.10	2179.916	2881.897	6135.503	16029.442	43131.121
1.00	5648.423	5885.774	7781.122	16565.857	43279.494
10.00	15184.686	15250.742	15891.590	21009.028	44727.813
100.00	40980.762	40998.653	41177.004	42907.292	56724.377
1000.00	110643.224	110648.057	110696.363	111177.912	115849.688

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,T) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.011	0.016	0.039	0.104	0.280
0.10	0.029	0.029	0.044	0.105	0.280
1.00	0.079	0.079	0.079	0.118	0.284
10.00	0.214	0.214	0.212	0.213	0.319
100.00	0.578	0.578	0.577	0.573	0.575
1000.00	1.561	1.561	1.560	1.559	1.547
D= 1000.0					
0.01	0.916	1.372	3.296	8.705	23.689
0.10	2.464	2.473	3.704	8.700	23.720
1.00	6.704	6.654	6.676	9.999	24.030
10.00	18.116	18.100	17.966	18.026	26.999
100.00	48.919	48.914	48.870	48.508	48.669
1000.00	132.082	132.081	132.069	131.950	130.970
D=100000.0					
0.01	77.513	116.098	278.997	743.572	2005.006
0.10	208.590	209.285	313.465	753.293	2007.643
1.00	567.405	563.194	565.069	846.356	2033.891
10.00	1533.374	1531.993	1520.623	1525.687	2285.161
100.00	4140.491	4140.111	4136.380	4105.682	4112.356
1000.00	11179.430	11179.327	11178.300	11168.227	11085.342

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (N),R,T) OVER (00,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	PC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.013	0.040	0.109	0.294	0.795
0.10	0.014	0.036	0.107	0.294	0.795
1.00	0.030	0.039	0.096	0.288	0.793
10.00	0.078	0.081	0.104	0.260	0.779
100.00	0.211	0.212	0.218	0.282	0.702
1000.00	0.569	0.569	0.571	0.589	0.760
D= 1000.0					
0.01	1.118	3.349	9.212	24.921	67.301
0.10	1.211	3.019	9.042	24.872	67.287
1.00	2.534	3.269	8.150	24.419	67.154
10.00	6.631	6.842	8.825	22.306	65.920
100.00	17.846	17.903	18.472	23.828	59.416
1000.00	48.167	48.183	48.338	49.875	64.337
D=100000.0					
0.01	94.629	283.465	779.687	2109.338	5696.351
0.10	102.466	255.499	765.356	2105.154	5695.212
1.00	214.471	276.657	689.846	2066.460	5683.915
10.00	561.220	579.070	746.974	1862.586	5579.143
100.00	1510.444	1515.295	1563.490	2016.831	5028.951
1000.00	4076.888	4078.199	4091.296	4221.424	5445.443

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.078	0.158	0.396	1.023	2.642
0.10	0.158	0.202	0.410	1.026	2.643
1.00	0.396	0.410	0.525	1.063	2.653
10.00	1.023	1.026	1.063	1.361	2.748
100.00	2.642	2.643	2.653	2.748	3.514
1000.00	6.804	6.804	6.807	6.832	7.075
D= 1000.0					
0.01	6.571	13.352	33.506	86.553	223.622
0.10	13.352	17.116	34.713	86.873	223.705
1.00	33.506	34.713	44.466	89.991	224.531
10.00	86.553	86.873	89.991	115.185	232.560
100.00	223.622	223.705	224.531	232.560	297.404
1000.00	575.906	575.927	576.140	578.258	598.853
D=100000.0					
0.01	556.169	1130.125	2835.977	7325.814	18927.386
0.10	1130.125	1448.672	2938.082	7352.952	18934.395
1.00	2835.977	2938.082	3763.589	7616.843	19001.290
10.00	7325.814	7352.952	7616.843	9740.258	19683.893
100.00	18927.386	18934.395	19004.290	19683.393	25172.304
1000.00	48744.694	48746.493	48764.474	48943.766	50684.923

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTPIBUTED

SAVINGS OF (M,T) OVER (00,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.002	0.023	0.070	0.191	0.515
0.10	-0.015	0.006	0.063	0.189	0.515
1.00	-0.049	-0.040	0.017	0.170	0.510
10.00	-0.136	-0.133	-0.108	0.047	0.460
100.00	-0.367	-0.366	-0.359	-0.292	0.127
1000.00	-0.991	-0.991	-0.989	-0.970	-0.787
D= 1000.0					
0.01	0.202	1.977	5.916	16.136	43.612
0.10	-1.254	0.546	5.339	15.972	43.568
1.00	-4.170	-3.385	1.474	14.415	43.124
10.00	-11.486	-11.259	-9.140	3.980	38.921
100.00	-31.073	-31.012	-30.398	-24.679	10.747
1000.00	-83.915	-83.898	-83.731	-82.075	-66.634
D=100000.0					
0.01	17.116	167.367	500.689	1365.766	3691.345
0.10	-106.125	46.214	451.891	1351.661	3687.569
1.00	-352.934	-286.537	124.777	1220.105	3650.024
10.00	-972.154	-952.922	-773.649	336.398	3294.282
100.00	-2630.047	-2624.816	-2572.890	-2088.852	909.625
1000.00	-7102.541	-7101.128	-7087.004	-6946.804	-5639.699

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (Q,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.080	0.181	0.466	1.213	3.157
0.10	0.143	0.209	0.473	1.215	3.158
1.00	0.347	0.370	0.543	1.234	3.162
10.00	0.887	0.893	0.955	1.408	3.207
100.00	2.275	2.277	2.294	2.456	3.641
1000.00	5.813	5.813	5.818	5.862	6.288
D= 1000.0					
0.01	6.773	15.330	39.422	102.689	267.235
0.10	12.098	17.662	40.052	102.845	267.273
1.00	29.337	31.327	45.940	104.406	267.655
10.00	75.067	75.615	80.851	119.165	271.481
100.00	192.549	192.694	194.133	207.881	308.151
1000.00	491.991	492.029	492.409	496.183	532.219
D=100000.0					
0.01	573.285	1297.492	3336.667	8691.580	22618.730
0.10	1024.000	1494.886	3389.973	8704.613	22621.965
1.00	2483.043	2651.546	3888.367	8836.948	22654.315
10.00	6353.660	6400.030	6843.194	10086.156	22978.175
100.00	16297.338	16309.579	16431.400	17595.041	26081.929
1000.00	41642.153	41645.365	41677.471	41996.962	45046.994

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (Q,R)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.118	0.238	0.590	1.507	3.863
0.10	0.238	0.304	0.610	1.512	3.864
1.00	0.590	0.610	0.780	1.566	3.879
10.00	1.507	1.512	1.566	2.000	4.016
100.00	3.863	3.864	3.879	4.016	5.129
1000.00	9.908	9.909	9.912	9.949	10.302
D= 1000.0					
0.01	11.322	22.741	56.329	143.956	369.111
0.10	22.741	29.042	58.331	144.484	369.247
1.00	56.329	58.331	74.492	149.618	370.601
10.00	143.956	144.484	149.618	191.073	383.771
100.00	369.111	369.247	370.601	383.771	490.102
1000.00	946.734	946.769	947.117	950.592	984.372
D=100000.0					
0.01	1081.859	2172.919	5382.270	13755.063	35268.756
0.10	2172.919	2774.967	5573.537	13805.522	35281.736
1.00	5382.270	5573.537	7117.701	14296.122	35411.163
10.00	13755.063	13805.522	14296.122	18257.133	36669.552
100.00	35268.756	35281.736	35411.163	36669.552	46829.546

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL(M, T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.232	0.453	1.084	2.674	6.615
0.10	0.453	0.573	1.121	2.683	6.618
1.00	1.084	1.121	1.419	2.775	6.641
10.00	2.674	2.683	2.775	3.511	6.868
100.00	6.615	6.618	6.641	6.868	8.690
1000.00	16.373	16.373	16.379	16.437	16.998
D= 1000.0					
0.01	22.129	43.286	103.592	255.490	632.113
0.10	43.286	54.768	107.132	256.391	632.337
1.00	103.592	107.132	135.552	265.151	634.568
10.00	255.490	256.391	265.151	335.491	656.249
100.00	632.113	632.337	634.568	656.249	830.339
1000.00	1564.424	1564.479	1565.033	1570.556	1624.216
D=10000.0					
0.01	2114.405	4135.962	9898.319	24412.188	60398.779
0.10	4135.962	5233.153	10236.507	24498.339	60420.165
1.00	9898.319	10236.507	12952.053	25335.355	60633.390
10.00	24412.188	24498.339	25335.355	32056.330	62705.004
100.00	60398.779	60420.165	60633.390	62705.004	79339.418

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (00,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.235	0.482	1.164	2.872	7.108
0.10	0.435	0.581	1.193	2.880	7.109
1.00	1.028	1.076	1.438	2.952	7.128
10.00	2.532	2.544	2.662	3.559	7.306
100.00	6.263	6.266	6.296	6.589	8.009
1000.00	15.500	15.500	15.508	15.583	16.308
D= 1000.0					
0.01	22.430	46.045	111.180	274.467	679.131
0.10	41.527	55.515	113.961	275.170	679.306
1.00	98.212	102.780	137.400	282.052	681.045
10.00	241.899	243.075	254.381	340.064	698.060
100.00	598.408	598.700	601.610	629.593	841.658
1000.00	1480.987	1481.060	1481.783	1488.986	1558.242
D=100000.0					
0.01	2143.228	4399.597	10623.294	26225.484	64891.413
0.10	3967.963	5304.489	10889.002	26292.652	64908.073
1.00	9384.226	9820.708	13128.610	26950.279	65074.313
10.00	23113.608	23225.959	24306.251	32493.310	66701.940
100.00	57178.258	57206.179	57484.248	60157.972	80420.243

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (M,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.217	0.433	1.040	2.565	6.347
0.10	0.417	0.538	1.071	2.573	6.349
1.00	0.993	1.032	1.331	2.652	6.369
10.00	2.449	2.459	2.553	3.294	6.563
100.00	6.059	6.062	6.086	6.319	8.152
1000.00	14.996	14.997	15.003	15.062	15.639
D= 1000.0					
0.01	20.758	41.362	99.342	245.101	606.434
0.10	39.823	51.375	102.370	245.870	606.625
1.00	94.929	98.562	127.153	253.366	608.529
10.00	234.020	234.949	243.940	314.703	627.082
100.00	578.969	579.200	581.498	603.752	778.891
1000.00	1432.891	1432.949	1433.519	1439.208	1494.287
D=100000.0					
0.01	1083.395	3952.139	9492.143	23419.559	57945.171
0.10	3805.105	4908.903	9781.545	23493.055	57963.409
1.00	9070.505	9417.634	12149.535	24209.324	58145.311
10.00	22360.766	22449.501	23308.645	30070.098	59918.077
100.00	55320.859	55342.895	55562.514	57688.896	74423.193

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,T) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.014	0.020	0.044	0.109	0.269
0.10	0.036	0.036	0.050	0.110	0.269
1.00	0.091	0.090	0.088	0.123	0.273
10.00	0.225	0.224	0.222	0.218	0.305
100.00	0.556	0.556	0.555	0.549	0.538
1000.00	1.377	1.377	1.376	1.375	1.360
D= 1000.0					
0.01	1.371	1.924	4.251	10.389	25.679
0.10	3.463	3.393	4.761	10.521	25.712
1.00	8.664	8.570	8.399	11.785	26.039
10.00	21.469	21.442	21.211	20.787	29.167
100.00	53.144	53.137	53.070	52.497	51.448
1000.00	131.532	131.531	131.514	131.348	129.930
D=100000.0					
0.01	131.010	183.823	406.176	992.629	2453.608
0.10	330.858	324.250	454.962	1005.285	2456.756
1.00	827.814	818.873	802.518	1126.031	2488.080
10.00	2051.422	2048.839	2026.710	1986.232	2786.927
100.00	5077.920	5077.270	5070.876	5016.108	4915.925

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,T) OVER (00,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0•10•D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0•

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10•0					
0.01	0.018	0.049	0.124	0.307	0.761
0.10	0.018	0.043	0.121	0.307	0.761
1.00	0.034	0.044	0.107	0.300	0.759
10.00	0.082	0.085	0.109	0.265	0.743
100.00	0.203	0.204	0.210	0.270	0.657
1000.00	0.503	0.504	0.505	0.521	0.669
D= 1000•0					
0.01	1.673	4.683	11.838	29.366	72.697
0.10	1.704	4.140	11.599	29.300	72.680
1.00	3.283	4.218	10.247	28.686	72.517
10.00	7.879	8.126	10.441	25.361	70.998
100.00	19.439	19.500	20.112	25.841	62.767
1000.00	48.096	48.111	48.264	49.778	63.955
D=100000•0					
0.01	159.833	447.457	1131.150	2805.925	6946.243
0.10	162.858	395.586	1107.456	2799.597	6944.664
1.00	313.720	403.073	979.076	2740.955	6929.003
10.00	752.842	776.458	997.606	2423.212	6783.863
100.00	1857.399	1863.284	1021.734	2469.076	5997.450

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.113	0.215	0.495	1.167	2.752
0.10	0.215	0.269	0.511	1.171	2.753
1.00	0.495	0.511	0.639	1.209	2.763
10.00	1.167	1.171	1.209	1.511	2.852
100.00	2.752	2.753	2.763	2.852	3.561
1000.00	6.465	6.465	6.467	6.488	6.696
D= 1000.0					
0.01	10.806	20.545	47.263	111.534	263.002
0.10	20.545	25.727	48.801	111.907	263.090
1.00	47.263	48.801	61.059	115.533	263.967
10.00	111.534	111.907	115.533	144.418	272.478
100.00	263.002	263.090	263.967	272.478	340.237
1000.00	617.690	617.710	617.916	619.965	639.844
D=100000.0					
0.01	1032.547	1963.044	4516.049	10657.125	25130.023
0.10	1063.044	2458.185	4662.970	10692.818	25138.429
1.00	4516.049	4662.970	5834.262	11039.234	25222.227
10.00	10657.125	10692.818	11039.234	13790.197	26035.452
100.00	25130.023	25138.429	25222.227	26035.452	32509.872

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,T) OVER (OQ,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.003	0.029	0.079	0.199	0.402
0.10	-0.018	0.008	0.071	0.197	0.402
1.00	-0.056	-0.046	0.019	0.177	0.486
10.00	-0.142	-0.139	-0.113	0.049	0.438
100.00	-0.353	-0.352	-0.345	-0.279	0.118
1000.00	-0.873	-0.873	-0.871	-0.854	-0.690
D= 1000.0					
0.01	0.302	2.759	7.587	18.977	47.018
0.10	-1.758	0.747	6.829	18.779	46.969
1.00	-5.380	-4.352	1.848	16.901	46.477
10.00	-13.590	-13.316	-10.770	4.573	41.831
100.00	-33.705	-33.636	-32.958	-26.656	11.319
1000.00	-83.436	-83.420	-83.250	-81.571	-65.974
D=100000.0					
0.01	28.823	263.634	724.975	1813.296	4492.634
0.10	-168.000	71.336	652.494	1794.312	4487.908
1.00	-514.093	-415.800	176.558	1614.924	4440.923
10.00	-1298.680	-1272.381	-1029.104	436.980	3996.936
100.00	-3220.521	-3213.986	-3149.142	-2547.032	1081.525

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (GQ,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDER COST PER SQUARE TIME BACKORDERED=1.00

BACKORDER COST PER YEAR = 1.0

BACKORDER COST PER UNIT BACKORDERED =0.10

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.116	0.244	0.574	1.366	3.245
0.10	0.197	0.277	0.582	1.368	3.245
1.00	0.438	0.465	0.658	1.386	3.249
10.00	1.025	1.032	1.096	1.559	3.289
100.00	2.400	2.401	2.418	2.573	3.679
1000.00	5.591	5.592	5.596	5.635	6.006
D= 1000.0					
0.01	11.108	23.304	54.851	130.511	310.021
0.10	18.786	26.473	55.630	130.686	310.059
1.00	41.883	44.449	62.907	132.434	310.444
10.00	97.943	98.591	104.763	148.991	314.309
100.00	229.297	229.454	231.009	245.822	351.556
1000.00	534.253	534.291	534.666	538.394	573.869
D=100000.0					
0.01	1061.369	2226.678	5241.024	12470.421	29622.657
0.10	1795.044	2529.522	5315.465	12487.130	29626.337
1.00	4001.956	4247.171	6010.820	12654.157	29663.150
10.00	9358.545	9420.437	10010.130	14236.177	30032.388
100.00	21909.502	21924.443	22073.084	23488.420	33591.397

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (Q,R)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.190	0.368	0.864	2.093	5.083
0.10	0.368	0.463	0.893	2.100	5.085
1.00	0.864	0.893	1.125	2.170	5.103
10.00	2.093	2.100	2.170	2.733	5.273
100.00	5.083	5.085	5.103	5.273	6.641
1000.00	12.352	12.352	12.357	12.399	12.814
D= 1000.0					
0.01	20.402	39.369	92.569	224.168	544.538
0.10	39.369	49.576	95.667	224.943	544.727
1.00	92.569	95.667	120.470	232.470	546.611
10.00	224.168	224.943	232.470	292.742	564.902
100.00	544.538	544.727	546.611	564.902	711.362
1000.00	1323.182	1323.228	1323.687	1328.264	1372.711
D=100000.0					
0.01	2185.477	4217.303	9916.220	24013.389	58332.299
0.10	4217.303	5310.710	10248.046	24096.414	58352.536
1.00	9916.220	10248.046	12905.025	24902.753	58554.287
10.00	24013.389	24096.414	24902.753	31359.211	60513.689
100.00	58332.299	58352.536	58554.287	60513.689	76202.883
1000.00	141742.568	141747.487	141796.661	142286.918	147048.264

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL(M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.374	0.701	1.589	3.706	8.670
0.10	0.701	0.874	1.640	3.719	8.673
1.00	1.589	1.640	2.045	3.838	8.702
10.00	3.706	3.719	3.838	4.786	8.980
100.00	8.670	8.673	8.702	8.980	11.198
1000.00	20.288	20.288	20.295	20.362	21.014
D= 1000.0					
0.01	40.011	75.081	170.238	397.044	928.774
0.10	75.081	93.625	175.689	398.358	929.082
1.00	170.238	175.689	219.082	411.113	932.158
10.00	397.044	398.358	411.113	512.652	962.004
100.00	928.774	929.082	932.158	962.004	1199.607
1000.00	2173.258	2173.330	2174.052	2181.249	2251.088
D=100000.0					
0.01	4266.039	8042.847	18236.368	42532.308	99492.552
0.10	8042.847	10029.332	18820.262	42673.101	99525.601
1.00	18236.368	18820.262	23468.637	44039.413	99855.056
10.00	42532.308	42673.101	44039.413	54916.611	103052.225
100.00	99492.552	99525.601	99855.056	103052.225	128504.870
1000.00	232804.837	232812.573	232889.905	233660.830	241142.207

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (GQ,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.366	0.715	1.634	3.813	8.920
0.10	0.658	0.858	1.674	3.823	8.922
1.00	1.479	1.540	2.007	3.916	8.945
10.00	3.445	3.460	3.604	4.696	9.164
100.00	8.058	8.061	8.096	8.434	10.988
1000.00	18.854	18.855	18.863	18.945	19.735
D= 1000.0					
0.01	39.260	76.616	174.991	408.451	955.535
0.10	70.512	91.868	179.282	409.479	955.776
1.00	158.394	164.999	214.972	419.520	958.180
10.00	369.035	370.642	386.097	503.035	981.678
100.00	863.165	863.542	867.303	903.466	1177.102
1000.00	2019.717	2019.805	2020.689	2029.488	2114.112
D=100000.0					
0.01	4205.633	8207.334	18745.467	43754.322	102359.297
0.10	7553.447	9841.181	19205.161	43864.393	102385.114
1.00	16967.570	17675.065	23028.363	44940.078	102642.679
10.00	39531.968	39704.114	41359.652	53886.370	105159.782
100.00	92464.359	92504.806	92907.627	96781.586	126094.106
1000.00	216357.132	216366.600	216461.247	217403.846	226468.912

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

MODEL (M,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10.0

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.352	0.672	1.528	3.565	8.339
0.10	0.648	0.823	1.572	3.575	8.342
1.00	1.464	1.517	1.926	3.678	8.366
10.00	3.413	3.426	3.549	4.507	8.605
100.00	7.985	7.988	8.017	6.305	10.546
1000.00	18.683	18.684	18.691	18.760	19.433
D= 1000.0					
0.01	37.680	71.946	163.677	381.879	893.334
0.10	69.432	88.172	168.354	383.003	893.597
1.00	156.847	162.471	206.323	393.948	896.228
10.00	365.660	367.021	380.182	482.796	921.837
100.00	855.325	855.645	858.830	889.627	1129.742
1000.00	2001.386	2001.460	2002.208	2009.661	2081.727
D=100000.0					
0.01	4036.421	7107.038	17533.453	40907.860	95696.136
0.10	7437.739	9445.226	18034.469	41028.280	95724.362
1.00	16801.806	17404.310	22101.829	42200.657	96006.175
10.00	39170.423	39316.225	40726.036	51718.281	98749.537
100.00	91624.552	91658.789	91999.967	95299.040	121020.776
1000.00	214393.437	214401.451	214481.567	215279.924	222999.754

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,T) OVER (M,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.022	0.029	0.061	0.142	0.331
0.10	0.053	0.051	0.068	0.143	0.331
1.00	0.125	0.123	0.119	0.160	0.335
10.00	0.293	0.293	0.289	0.279	0.375
100.00	0.696	0.686	0.685	0.676	0.652
1000.00	1.604	1.604	1.604	1.602	1.581
D= 1000.0					
0.01	2.330	3.135	6.562	15.164	35.440
0.10	5.649	5.453	7.335	15.355	35.485
1.00	13.392	13.218	12.759	17.165	35.930
10.00	31.384	31.337	30.930	29.857	40.166
100.00	73.449	73.438	73.328	72.377	69.865
1000.00	171.872	171.870	171.844	171.588	169.362
D=100000.0					
0.01	249.618	335.809	702.915	1624.448	3796.417
0.10	605.108	584.106	785.793	1644.821	3801.209
1.00	1434.562	1415.952	1366.808	1838.756	3848.880
10.00	3361.865	3356.875	3313.327	3198.331	4302.689
100.00	7868.001	7866.811	7855.088	7753.185	7484.094
1000.00	18411.400	18411.121	18408.339	18380.907	18142.453

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,R,T) OVER (00,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.015	0.044	0.106	0.248	0.501
0.10	0.010	0.035	0.102	0.247	0.500
1.00	0.014	0.024	0.081	0.239	0.578
10.00	0.032	0.034	0.055	0.180	0.559
100.00	0.073	0.074	0.079	0.120	0.442
1000.00	0.171	0.171	0.173	0.185	0.302
D= 1000.0					
0.01	1.580	4.670	11.314	26.572	62.201
0.10	1.080	3.696	10.929	26.475	62.179
1.00	1.547	2.528	8.649	25.573	61.952
10.00	3.375	3.621	5.914	20.230	59.840
100.00	7.840	7.898	8.473	13.840	47.360
1000.00	18.331	18.345	18.481	19.827	32.385
D=100000.0					
0.01	169.211	500.296	1212.014	2846.463	6663.161
0.10	115.707	395.955	1170.693	2836.113	6660.722
1.00	165.764	270.755	926.534	2739.421	6636.504
10.00	361.546	387.889	633.567	2168.090	6410.245
100.00	839.807	846.017	907.659	1482.546	5073.330
1000.00	1963.695	1965.149	1979.680	2123.922	3469.158

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (N,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.183	0.333	0.725	1.614	3.587
0.10	0.333	0.411	0.747	1.619	3.588
1.00	0.725	0.747	0.921	1.668	3.599
10.00	1.614	1.619	1.668	2.053	3.707
100.00	3.587	3.588	3.599	3.707	4.558
1000.00	7.936	7.936	7.938	7.963	8.200
D= 1000.0					
0.01	19.609	35.712	77.669	172.876	384.235
0.10	35.712	44.049	80.023	173.415	384.355
1.00	77.669	80.023	98.612	178.643	385.547
10.00	172.876	173.415	178.643	219.911	397.102
100.00	384.235	384.355	385.547	397.102	488.245
1000.00	850.076	850.102	850.365	852.985	878.377
D=100000.0					
0.01	2100.562	3825.544	8320.148	18518.919	41160.253
0.10	3825.544	4718.622	8572.215	18576.686	41173.065
1.00	8320.148	8572.215	10563.612	19136.660	41300.769
10.00	18518.919	18576.686	19136.660	23557.400	42538.536
100.00	41160.253	41173.065	41300.769	42538.536	52301.987
1000.00	91062.269	91065.086	91093.244	91373.913	94093.943

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (M,T) OVER (00,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	±0.007	0.014	0.044	0.106	0.250
0.10	±0.043	-0.016	0.034	0.104	0.249
1.00	±0.111	-0.100	-0.038	0.078	0.243
10.00	±0.261	-0.259	-0.234	-0.090	0.164
100.00	±0.612	-0.612	-0.605	-0.546	-0.210
1000.00	±1.433	-1.433	-1.432	-1.417	-1.279
D= 1000.0					
0.01	±0.751	1.536	4.752	11.409	26.761
0.10	±4.569	-1.756	3.503	11.121	26.694
1.00	-11.844	-10.691	-4.110	8.408	26.023
10.00	-28.008	-27.716	-25.016	-9.617	19.674
100.00	-65.609	-65.540	-64.855	-58.537	±22.505
1000.00	-153.541	-153.525	-153.363	-151.761	±136.977
D=100000.0					
0.01	-80.407	164.487	509.099	1222.014	2866.744
0.10	-489.400	-188.151	384.900	1191.292	2859.514
1.00	-1268.798	±1145.197	-440.274	900.665	2787.624
10.00	-3000.339	-2968.987	-2679.760	-1030.241	2107.556
100.00	-7028.193	-7020.794	-6947.429	-6270.639	-2410.764
1000.00	-16447.705	-16445.972	-16428.659	-16256.984	-14673.295

DEMAND FOLLOWS A NORMAL DISTRIBUTION

SUPPLY FOLLOWS A GAMMA DISTRIBUTION

LEAD TIME IS GAMMA DISTRIBUTED

SAVINGS OF (Q,R) OVER (Q,R,T)

STANDARD DEVIATION OF DEMAND PER YEAR=0.10*D

HOLDING COST = 0.01

BACKORDERED COSTS = 0.1*EXP(2.5* TIME BACKORDERED)

STOCKOUT COST INDEPENDENT OF UNIT BACKORDERED =0.

ORDER COST	RC=0.01	RC=0.1	RC=1.0	RC=10.0	RC=100.0
D= 10.0					
0.01	0.176	0.348	0.769	1.720	3.837
0.10	0.291	0.395	0.781	1.723	3.837
1.00	0.614	0.647	0.882	1.746	3.842
10.00	1.352	1.360	1.434	1.963	3.881
100.00	2.974	2.976	2.994	3.161	4.348
1000.00	6.502	6.503	6.507	6.546	6.921
D= 1000.0					
0.01	18.858	37.247	82.422	184.284	410.997
0.10	31.143	42.292	83.616	184.536	411.049
1.00	65.825	69.332	94.502	187.051	411.570
10.00	144.868	145.700	153.627	210.293	416.776
100.00	318.626	318.815	320.697	338.565	465.740
1000.00	696.535	696.577	697.002	701.225	741.400
D=100000.0					
0.01	2020.156	3990.031	8829.247	19740.933	44026.997
0.10	3336.144	4530.471	8957.115	19767.978	44032.579
1.00	7051.350	7427.019	10123.338	20037.325	44088.392
10.00	15518.579	15607.699	16456.900	22527.150	44646.093
100.00	34132.060	34152.271	34353.339	36267.898	49891.223
1000.00	74614.564	74619.113	74664.585	75116.928	79420.648