

# DATA

ENTER DATA IN THE SHADED AREAS BELOW

CALL OPTION DATA			
Current date	12-Jun-95		
Current stock price	\$164.00		
Call expiration date	17-Jul-95	Days (yrs) to maturity	35 0.096
Call price	\$5.750		
Call exercise	\$165.00		
Input variance	0.0841		
TREASURY BILL DATA			
T-Bill expiration date	16-Jul-95	Days (yrs) to maturity	34 0.094
T-Bill bid	5.16	Average bid-ask	5.13
T-Bill ask	5.10	Discount	0.4845
SECOND CALL DATA		T-Bill price	99.5155
Call two price	\$3.750	Annualized riskless rate	5.35%
call two exercise	\$170.00	Continous riskless rate	5.21%
<p>There is an input area on the next page for weekly stock prices. The horizon to hold the call spread is input on the page named Cbspread</p>		Implied variance =	0.0830 StanDev = 0.2881
		Historical variance =	0.1410 StanDev = 0.3755
		Input variance =	0.0841 StanDev = 0.2900

# H-Variance

## HISTORICAL VARIANCE CALCULATION

Enter weekly stock price in shaded column below.				
Week	Price	Retun	Ln(1+r)	Dev^2
0	106.125	na	na	na
1	106.375	0.0024	0.0024	0.0002
2	106.750	0.0035	0.0035	0.0002
3	105.750	-0.0094	-0.0094	0.0007
4	113.750	0.0757	0.0729	0.0032
5	138.000	0.2132	0.1933	0.0312
6	143.000	0.0362	0.0356	0.0004
7	145.125	0.0149	0.0148	0.0000
8	152.500	0.0508	0.0496	0.0011
9	151.500	-0.0066	-0.0066	0.0005
10	153.875	0.0157	0.0156	0.0000
11	153.250	-0.0041	-0.0041	0.0004
12	169.125	0.1036	0.0986	0.0067
13	163.750	-0.0318	-0.0323	0.0024
14	166.500	0.0168	0.0167	0.0000
15	161.125	-0.0323	-0.0328	0.0025
16	169.125	0.0497	0.0485	0.0010
17	166.125	-0.0177	-0.0179	0.0012
18	157.000	-0.0549	-0.0565	0.0054
19	162.125	0.0326	0.0321	0.0002
20	172.500	0.0640	0.0620	0.0021
21	167.125	-0.0312	-0.0317	0.0023
22	159.500	-0.0456	-0.0467	0.0040
23	155.000	-0.0282	-0.0286	0.0021
24	157.375	0.0153	0.0152	0.0000
25	162.000	0.0294	0.0290	0.0001
26	164.000	0.0123	0.0123	0.0000
Average =		0.01674	0.06780	

Average return	0.0167
Weekly Variance	0.0027
Annual Variance	0.1410
Annual StanDev	0.3755

C-Price

**CALL OPTION PRICES BASED ON INPUT VARIANCE**

<div> <math>r_t = 0.005</math> <math>e^{-rt} = 0.995013</math> <math>E(e^{-rt}) = 164.1771</math> <math>\text{sqrt}(v_t) = 0.089802</math> </div>						
Stock	$\ln(s/E)$	d1	N(d1)	d2	N(d2)	Call
\$ 8.20	-3.0018	-33.326	0.000	-33.416	0.000	\$0.000
\$ 16.40	-2.3087	-25.608	0.000	-25.698	0.000	\$0.000
\$ 24.60	-1.9032	-21.093	0.000	-21.183	0.000	\$0.000
\$ 32.80	-1.6155	-17.889	0.000	-17.979	0.000	\$0.000
\$ 41.00	-1.3924	-15.404	0.000	-15.494	0.000	\$0.000
\$ 49.20	-1.2101	-13.374	0.000	-13.464	0.000	\$0.000
\$ 57.40	-1.0559	-11.658	0.000	-11.747	0.000	\$0.000
\$ 65.60	-0.9224	-10.171	0.000	-10.260	0.000	\$0.000
\$ 73.80	-0.8046	-8.859	0.000	-8.949	0.000	\$0.000
\$ 82.00	-0.6992	-7.686	0.000	-7.776	0.000	\$0.000
\$ 90.20	-0.6039	-6.624	0.000	-6.714	0.000	\$0.000
\$ 98.40	-0.5169	-5.655	0.000	-5.745	0.000	\$0.000
\$ 106.60	-0.4369	-4.764	0.000	-4.854	0.000	\$0.000
\$ 114.80	-0.3628	-3.939	0.000	-4.029	0.000	\$0.000
\$ 123.00	-0.2938	-3.171	0.001	-3.260	0.001	\$0.002
\$ 131.20	-0.2292	-2.452	0.007	-2.542	0.006	\$0.027
\$ 139.40	-0.1686	-1.777	0.038	-1.867	0.031	\$0.183
\$ 147.60	-0.1114	-1.140	0.127	-1.230	0.109	\$0.808
\$ 155.80	-0.0574	-0.538	0.295	-0.628	0.265	\$2.488
\$ 164.00	-0.0061	0.033	0.513	-0.057	0.477	\$5.788
\$ 172.20	0.0427	0.576	0.718	0.486	0.687	\$10.865
\$ 180.40	0.0892	1.094	0.863	1.004	0.842	\$17.393
\$ 188.60	0.1337	1.589	0.944	1.499	0.933	\$24.841
\$ 196.80	0.1762	2.063	0.980	1.973	0.976	\$32.753
\$ 205.00	0.2171	2.518	0.994	2.428	0.992	\$40.859
\$ 213.20	0.2563	2.954	0.998	2.865	0.998	\$49.032
\$ 221.40	0.2940	3.375	1.000	3.285	0.999	\$57.225
\$ 229.60	0.3304	3.780	1.000	3.690	1.000	\$65.423
\$ 237.80	0.3655	4.170	1.000	4.081	1.000	\$73.623
\$ 246.00	0.3994	4.548	1.000	4.458	1.000	\$81.823
\$ 254.20	0.4322	4.913	1.000	4.823	1.000	\$90.023
\$ 262.40	0.4639	5.267	1.000	5.177	1.000	\$98.223
\$ 270.60	0.4947	5.609	1.000	5.520	1.000	\$106.423
\$ 278.80	0.5245	5.942	1.000	5.852	1.000	\$114.623
\$ 287.00	0.5535	6.265	1.000	6.175	1.000	\$122.823
\$ 295.20	0.5817	6.578	1.000	6.488	1.000	\$131.023
\$ 303.40	0.6091	6.883	1.000	6.794	1.000	\$139.223
\$ 311.60	0.6358	7.180	1.000	7.091	1.000	\$147.423

C-Price

\$ 319.80	0.6618	7.470	1.000	7.380	1.000	\$155.623	
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# Implied Volatility

## MANASTER AND KOEHLER CALCULATION OF IMPLIED VOLATILITY

rt = 0.005		e-rt = 0.995013		E(e-rt) = 164.1771		sqrt(vt) = 0.0464634		
Stock	ln(s/E)	d1	N(d1)	d2	N(d2)	Call est.	Sigma	Call - est
\$ 164.00	-0.0061	0.000	0.500	-0.046	0.481	2.954	0.150046	-2.796
\$ 164.00	-0.0061	0.033	0.513	-0.057	0.477	5.749	0.288072	-0.001
\$ 164.00	-0.0061	0.033	0.513	-0.057	0.477	5.750	0.288100	0.000
\$ 164.00	-0.0061	0.033	0.513	-0.057	0.477	5.750	0.288099	0.000
\$ 164.00	-0.0061	0.033	0.513	-0.057	0.477	5.750	0.288099	0.000
\$ 164.00	-0.0061	0.033	0.513	-0.057	0.477	5.750	0.288099	0.000
\$ 164.00	-0.0061	0.033	0.513	-0.057	0.477	5.750	0.288099	0.000
\$ 164.00	-0.0061	0.033	0.513	-0.057	0.477	5.750	0.288099	0.000
\$ 164.00	-0.0061	0.033	0.513	-0.057	0.477	5.750	0.288099	0.000
\$ 164.00	-0.0061	0.033	0.513	-0.057	0.477	5.750	0.288099	0.000

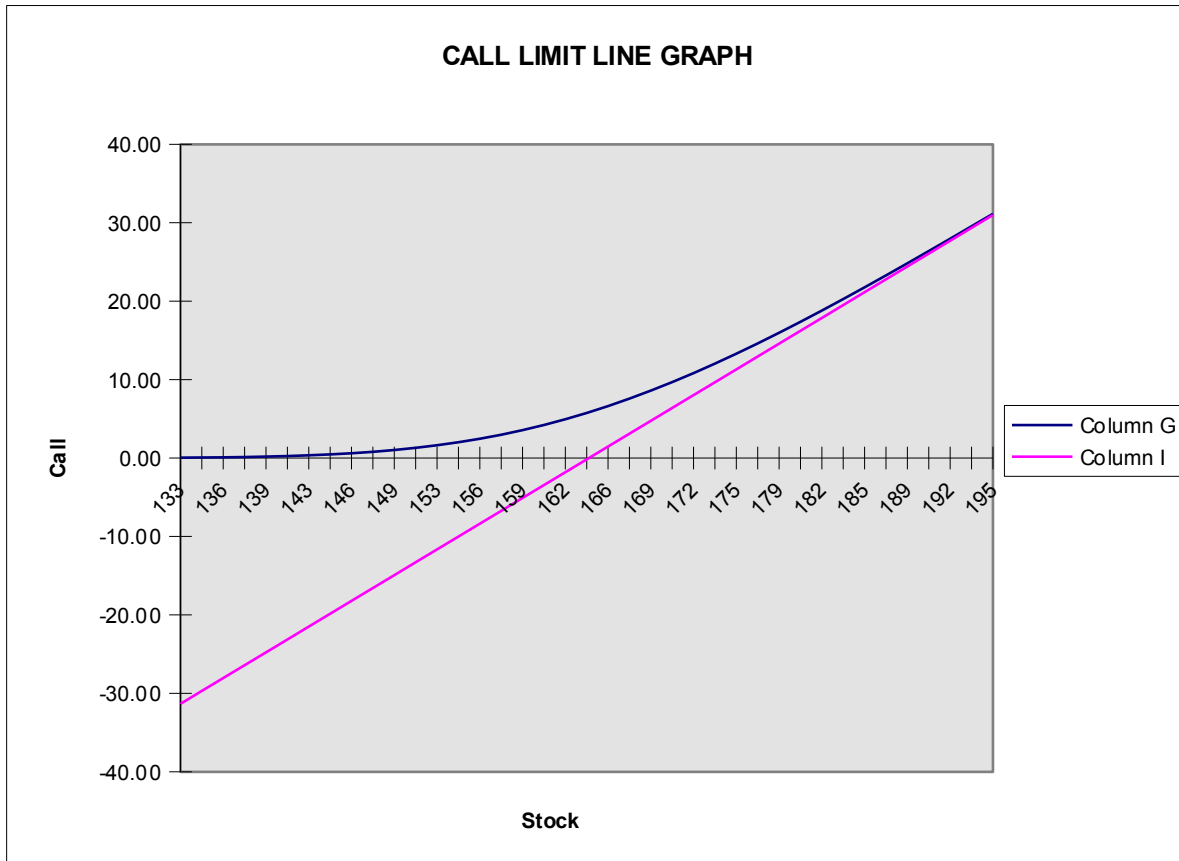
The procedure above uses eight iterations to narrow in on the implied volatility of the stock price based on the reported current call price. standard deviation is the last Sigma.

## CALL OPTION PRICES BASED ON IMPLIED VOLATILITY

rft = 0.0050		e^-rft = 0.9950		E*e-rft = \$164.177		sqrt(vt) = 0.0892						
Stock	ln(s/E)	d1	N(d1)	d2	N(d2)	Call	Put	Limit Line	GAMMA	RHO	VEGA	THETA
\$132.840	-0.2168	-2.329	0.010	-2.419	0.008	\$0.039	\$31.376	(\$31.337)	0.0022	0.123	1.088	-1.702
\$134.480	-0.2045	-2.192	0.014	-2.281	0.011	\$0.058	\$29.755	(\$29.697)	0.0030	0.177	1.504	-2.355
\$136.120	-0.1924	-2.056	0.020	-2.145	0.016	\$0.086	\$28.143	(\$28.057)	0.0040	0.251	2.031	-3.188
\$137.760	-0.1804	-1.922	0.027	-2.011	0.022	\$0.124	\$26.542	(\$26.417)	0.0051	0.349	2.685	-4.223
\$139.400	-0.1686	-1.789	0.037	-1.878	0.030	\$0.177	\$24.954	(\$24.777)	0.0065	0.475	3.475	-5.478
\$141.040	-0.1569	-1.658	0.049	-1.747	0.040	\$0.246	\$23.384	(\$23.137)	0.0080	0.634	4.407	-6.965
\$142.680	-0.1453	-1.528	0.063	-1.618	0.053	\$0.338	\$21.835	(\$21.497)	0.0097	0.832	5.481	-8.686
\$144.320	-0.1339	-1.400	0.081	-1.490	0.068	\$0.455	\$20.312	(\$19.857)	0.0116	1.073	6.688	-10.630
\$145.960	-0.1226	-1.274	0.101	-1.363	0.086	\$0.604	\$18.821	(\$18.217)	0.0136	1.361	8.012	-12.776
\$147.600	-0.1114	-1.148	0.125	-1.238	0.108	\$0.790	\$17.367	(\$16.577)	0.0157	1.699	9.429	-15.088
\$149.240	-0.1004	-1.025	0.153	-1.114	0.133	\$1.017	\$15.954	(\$14.937)	0.0177	2.089	10.907	-17.521
\$150.880	-0.0895	-0.902	0.183	-0.991	0.161	\$1.293	\$14.590	(\$13.297)	0.0197	2.531	12.408	-20.016
\$152.520	-0.0786	-0.781	0.217	-0.870	0.192	\$1.621	\$13.278	(\$11.657)	0.0216	3.024	13.890	-22.510
\$154.160	-0.0680	-0.661	0.254	-0.750	0.227	\$2.007	\$12.024	(\$10.017)	0.0233	3.567	15.307	-24.933
\$155.800	-0.0574	-0.542	0.294	-0.632	0.264	\$2.456	\$10.834	(\$8.377)	0.0248	4.153	16.614	-27.216
\$157.440	-0.0469	-0.425	0.335	-0.514	0.304	\$2.972	\$9.709	(\$6.737)	0.0259	4.778	17.770	-29.293
\$159.080	-0.0365	-0.309	0.379	-0.398	0.345	\$3.557	\$8.655	(\$5.097)	0.0268	5.436	18.737	-31.103
\$160.720	-0.0263	-0.194	0.423	-0.283	0.389	\$4.215	\$7.672	(\$3.457)	0.0273	6.117	19.485	-32.597
\$162.360	-0.0161	-0.080	0.468	-0.169	0.433	\$4.946	\$6.763	(\$1.817)	0.0275	6.813	19.993	-33.739
\$164.000	-0.0061	0.033	0.513	-0.057	0.477	\$5.750	\$5.927	(\$0.177)	0.0946	7.516	20.249	-34.506
\$165.640	0.0039	0.144	0.557	0.055	0.522	\$6.628	\$5.165	\$1.463	0.0267	8.216	20.252	-34.890
\$167.280	0.0137	0.254	0.600	0.165	0.566	\$7.577	\$4.474	\$3.103	0.0259	8.905	20.007	-34.897
\$168.920	0.0235	0.364	0.642	0.275	0.608	\$8.596	\$3.853	\$4.743	0.0248	9.575	19.531	-34.547
\$170.560	0.0331	0.472	0.682	0.383	0.649	\$9.682	\$3.299	\$6.383	0.0235	10.219	18.848	-33.871
\$172.200	0.0427	0.579	0.719	0.490	0.688	\$10.831	\$2.808	\$8.023	0.0220	10.831	17.986	-32.909
\$173.840	0.0522	0.686	0.754	0.596	0.725	\$12.038	\$2.375	\$9.663	0.0203	11.407	16.977	-31.706
\$175.480	0.0616	0.791	0.785	0.702	0.759	\$13.301	\$1.998	\$11.303	0.0186	11.942	15.856	-30.313
\$177.120	0.0709	0.895	0.815	0.806	0.790	\$14.613	\$1.670	\$12.943	0.0169	12.435	14.657	-28.780
\$178.760	0.0801	0.998	0.841	0.909	0.818	\$15.971	\$1.388	\$14.583	0.0152	12.884	13.415	-27.158
\$180.400	0.0892	1.101	0.865	1.012	0.844	\$17.370	\$1.147	\$16.223	0.0135	13.289	12.159	-25.491
\$182.040	0.0983	1.202	0.885	1.113	0.867	\$18.805	\$0.942	\$17.863	0.0119	13.652	10.916	-23.822
\$183.680	0.1072	1.303	0.904	1.214	0.888	\$20.273	\$0.770	\$19.503	0.0104	13.973	9.712	-22.187
\$185.320	0.1161	1.402	0.920	1.313	0.905	\$21.768	\$0.625	\$21.143	0.0090	14.254	8.563	-20.614
\$186.960	0.1249	1.501	0.933	1.412	0.921	\$23.288	\$0.505	\$22.783	0.0078	14.500	7.485	-19.128
\$188.600	0.1337	1.599	0.945	1.510	0.934	\$24.828	\$0.406	\$24.423	0.0066	14.711	6.487	-17.744
\$190.240	0.1423	1.696	0.955	1.607	0.946	\$26.387	\$0.324	\$26.063	0.0056	14.892	5.577	-16.475
\$191.880	0.1509	1.792	0.963	1.703	0.956	\$27.960	\$0.257	\$27.703	0.0047	15.046	4.756	-15.325
\$193.520	0.1594	1.888	0.970	1.799	0.964	\$29.546	\$0.203	\$29.343	0.0039	15.176	4.024	-14.297
\$195.160	0.1679	1.982	0.976	1.893	0.971	\$31.143	\$0.160	\$30.983	0.0032	15.284	3.379	-13.387

# Limit-Line Graph

## GRAPH



## CALL OPTION PRICES BASED ON HISTORICAL VOLATILITY

rft = 0.0050		e^-rft = 0.9950		E*e-rft = \$164.177		sqrt(vt) = 0.1163		
Stock	ln(s/E)	d1	N(d1)	d2	N(d2)	Call	Put	Limit Line
\$ 8.20	-3.0018	-25.712	0.000	-25.828	0.000	\$0.000	\$155.977	(\$155.977)
\$ 16.40	-2.3087	-19.752	0.000	-19.868	0.000	\$0.000	\$147.777	(\$147.777)
\$ 24.60	-1.9032	-16.265	0.000	-16.381	0.000	\$0.000	\$139.577	(\$139.577)
\$ 32.80	-1.6155	-13.791	0.000	-13.907	0.000	\$0.000	\$131.377	(\$131.377)
\$ 41.00	-1.3924	-11.872	0.000	-11.988	0.000	\$0.000	\$123.177	(\$123.177)
\$ 49.20	-1.2101	-10.304	0.000	-10.421	0.000	\$0.000	\$114.977	(\$114.977)
\$ 57.40	-1.0559	-8.979	0.000	-9.095	0.000	\$0.000	\$106.777	(\$106.777)
\$ 65.60	-0.9224	-7.831	0.000	-7.947	0.000	\$0.000	\$98.577	(\$98.577)
\$ 73.80	-0.8046	-6.818	0.000	-6.934	0.000	\$0.000	\$90.377	(\$90.377)
\$ 82.00	-0.6992	-5.912	0.000	-6.028	0.000	\$0.000	\$82.177	(\$82.177)
\$ 90.20	-0.6039	-5.092	0.000	-5.208	0.000	\$0.000	\$73.977	(\$73.977)
\$ 98.40	-0.5169	-4.344	0.000	-4.460	0.000	\$0.000	\$65.777	(\$65.777)
\$ 106.60	-0.4369	-3.656	0.000	-3.772	0.000	\$0.000	\$57.577	(\$57.577)
\$ 114.80	-0.3628	-3.018	0.001	-3.135	0.001	\$0.005	\$49.382	(\$49.377)
\$ 123.00	-0.2938	-2.425	0.008	-2.541	0.006	\$0.035	\$41.212	(\$41.177)
\$ 131.20	-0.2292	-1.870	0.031	-1.986	0.024	\$0.175	\$33.152	(\$32.977)
\$ 139.40	-0.1686	-1.349	0.089	-1.465	0.071	\$0.635	\$25.412	(\$24.777)
\$ 147.60	-0.1114	-0.857	0.196	-0.973	0.165	\$1.766	\$18.343	(\$16.577)
\$ 155.80	-0.0574	-0.392	0.347	-0.509	0.306	\$3.968	\$12.346	(\$8.377)
\$ 164.00	-0.0061	0.049	0.519	-0.067	0.473	\$7.520	\$7.697	(\$0.177)
\$ 172.20	0.0427	0.468	0.680	0.352	0.638	\$12.456	\$4.433	\$8.023
\$ 180.40	0.0892	0.868	0.807	0.752	0.774	\$18.583	\$2.360	\$16.223
\$ 188.60	0.1337	1.251	0.894	1.134	0.872	\$25.587	\$1.164	\$24.423
\$ 196.80	0.1762	1.617	0.947	1.500	0.933	\$33.158	\$0.535	\$32.623
\$ 205.00	0.2171	1.968	0.975	1.851	0.968	\$41.053	\$0.230	\$40.823
\$ 213.20	0.2563	2.305	0.989	2.189	0.986	\$49.116	\$0.093	\$49.023
\$ 221.40	0.2940	2.630	0.996	2.513	0.994	\$57.258	\$0.035	\$57.223
\$ 229.60	0.3304	2.942	0.998	2.826	0.998	\$65.436	\$0.013	\$65.423
\$ 237.80	0.3655	3.244	0.999	3.128	0.999	\$73.627	\$0.004	\$73.623
\$ 246.00	0.3994	3.536	1.000	3.419	1.000	\$81.824	\$0.001	\$81.823
\$ 254.20	0.4322	3.818	1.000	3.701	1.000	\$90.023	\$0.000	\$90.023
\$ 262.40	0.4639	4.091	1.000	3.974	1.000	\$98.223	\$0.000	\$98.223
\$ 270.60	0.4947	4.355	1.000	4.239	1.000	\$106.423	\$0.000	\$106.423
\$ 278.80	0.5245	4.612	1.000	4.496	1.000	\$114.623	\$0.000	\$114.623
\$ 287.00	0.5535	4.861	1.000	4.745	1.000	\$122.823	\$0.000	\$122.823
\$ 295.20	0.5817	5.103	1.000	4.987	1.000	\$131.023	\$0.000	\$131.023
\$ 303.40	0.6091	5.339	1.000	5.223	1.000	\$139.223	\$0.000	\$139.223
\$ 311.60	0.6358	5.568	1.000	5.452	1.000	\$147.423	\$0.000	\$147.423
\$ 319.80	0.6618	5.792	1.000	5.675	1.000	\$155.623	\$0.000	\$155.623



**SECOND CALL OPTION PRICES BASED ON IMPLIED VARIANCE**

rft = 0.0050		e^-rft = 0.9950		E*e-rft = \$169.152		sqrt(vt) = 0.0892		
Stock	ln(s/E)	d1	N(d1)	d2	N(d2)	Call	Put	Limit Line
\$ 8.20	-3.0317	-33.882	0.000	-33.971	0.000	\$0.000	\$155.977	(\$155.977)
\$ 16.40	-2.3385	-26.112	0.000	-26.201	0.000	\$0.000	\$147.777	(\$147.777)
\$ 24.60	-1.9331	-21.567	0.000	-21.656	0.000	\$0.000	\$139.577	(\$139.577)
\$ 32.80	-1.6454	-18.342	0.000	-18.432	0.000	\$0.000	\$131.377	(\$131.377)
\$ 41.00	-1.4222	-15.841	0.000	-15.930	0.000	\$0.000	\$123.177	(\$123.177)
\$ 49.20	-1.2399	-13.798	0.000	-13.887	0.000	\$0.000	\$114.977	(\$114.977)
\$ 57.40	-1.0858	-12.070	0.000	-12.159	0.000	\$0.000	\$106.777	(\$106.777)
\$ 65.60	-0.9522	-10.573	0.000	-10.662	0.000	\$0.000	\$98.577	(\$98.577)
\$ 73.80	-0.8344	-9.253	0.000	-9.342	0.000	\$0.000	\$90.377	(\$90.377)
\$ 82.00	-0.7291	-8.072	0.000	-8.161	0.000	\$0.000	\$82.177	(\$82.177)
\$ 90.20	-0.6338	-7.003	0.000	-7.093	0.000	\$0.000	\$73.977	(\$73.977)
\$ 98.40	-0.5468	-6.028	0.000	-6.117	0.000	\$0.000	\$65.777	(\$65.777)
\$ 106.60	-0.4667	-5.131	0.000	-5.220	0.000	\$0.000	\$57.577	(\$57.577)
\$ 114.80	-0.3926	-4.300	0.000	-4.389	0.000	\$0.000	\$49.377	(\$49.377)
\$ 123.00	-0.3236	-3.527	0.000	-3.616	0.000	\$0.001	\$41.178	(\$41.178)
\$ 131.20	-0.2591	-2.803	0.003	-2.893	0.002	\$0.009	\$32.995	(\$32.987)
\$ 139.40	-0.1985	-2.124	0.017	-2.213	0.013	\$0.073	\$24.917	(\$24.844)
\$ 147.60	-0.1413	-1.483	0.069	-1.572	0.058	\$0.387	\$17.253	(\$16.865)
\$ 155.80	-0.0872	-0.877	0.190	-0.966	0.167	\$1.397	\$10.605	(\$9.208)
\$ 164.00	-0.0359	-0.302	0.381	-0.391	0.348	\$3.703	\$5.610	(\$1.907)
\$ 172.20	0.0129	0.245	0.597	0.156	0.562	\$7.718	\$2.490	\$5.228
\$ 180.40	0.0594	0.766	0.778	0.677	0.751	\$13.393	\$0.905	\$12.488
\$ 188.60	0.1038	1.264	0.897	1.175	0.880	\$20.305	\$0.261	\$20.045
\$ 196.80	0.1464	1.742	0.959	1.652	0.951	\$27.947	\$0.055	\$27.893
\$ 205.00	0.1872	2.199	0.986	2.110	0.983	\$35.940	\$0.006	\$35.935
\$ 213.20	0.2264	2.639	0.996	2.550	0.995	\$44.073	(\$0.002)	\$44.075
\$ 221.40	0.2642	3.062	0.999	2.973	0.999	\$52.254	(\$0.001)	\$52.255
\$ 229.60	0.3005	3.469	1.000	3.380	1.000	\$60.449	(\$0.000)	\$60.450
\$ 237.80	0.3356	3.863	1.000	3.774	1.000	\$68.648	(\$0.000)	\$68.648
\$ 246.00	0.3695	4.243	1.000	4.154	1.000	\$76.848	(\$0.000)	\$76.848
\$ 254.20	0.4023	4.610	1.000	4.521	1.000	\$85.048	(\$0.000)	\$85.048
\$ 262.40	0.4341	4.966	1.000	4.877	1.000	\$93.248	(\$0.000)	\$93.248
\$ 270.60	0.4648	5.311	1.000	5.222	1.000	\$101.448	(\$0.000)	\$101.448
\$ 278.80	0.4947	5.646	1.000	5.557	1.000	\$109.648	(\$0.000)	\$109.648
\$ 287.00	0.5237	5.971	1.000	5.881	1.000	\$117.848	(\$0.000)	\$117.848
\$ 295.20	0.5519	6.286	1.000	6.197	1.000	\$126.048	(\$0.000)	\$126.048
\$ 303.40	0.5793	6.594	1.000	6.504	1.000	\$134.248	(\$0.000)	\$134.248
\$ 311.60	0.6059	6.892	1.000	6.803	1.000	\$142.448	(\$0.000)	\$142.448
\$ 319.80	0.6319	7.184	1.000	7.094	1.000	\$150.648	(\$0.000)	\$150.648

# Cbspread

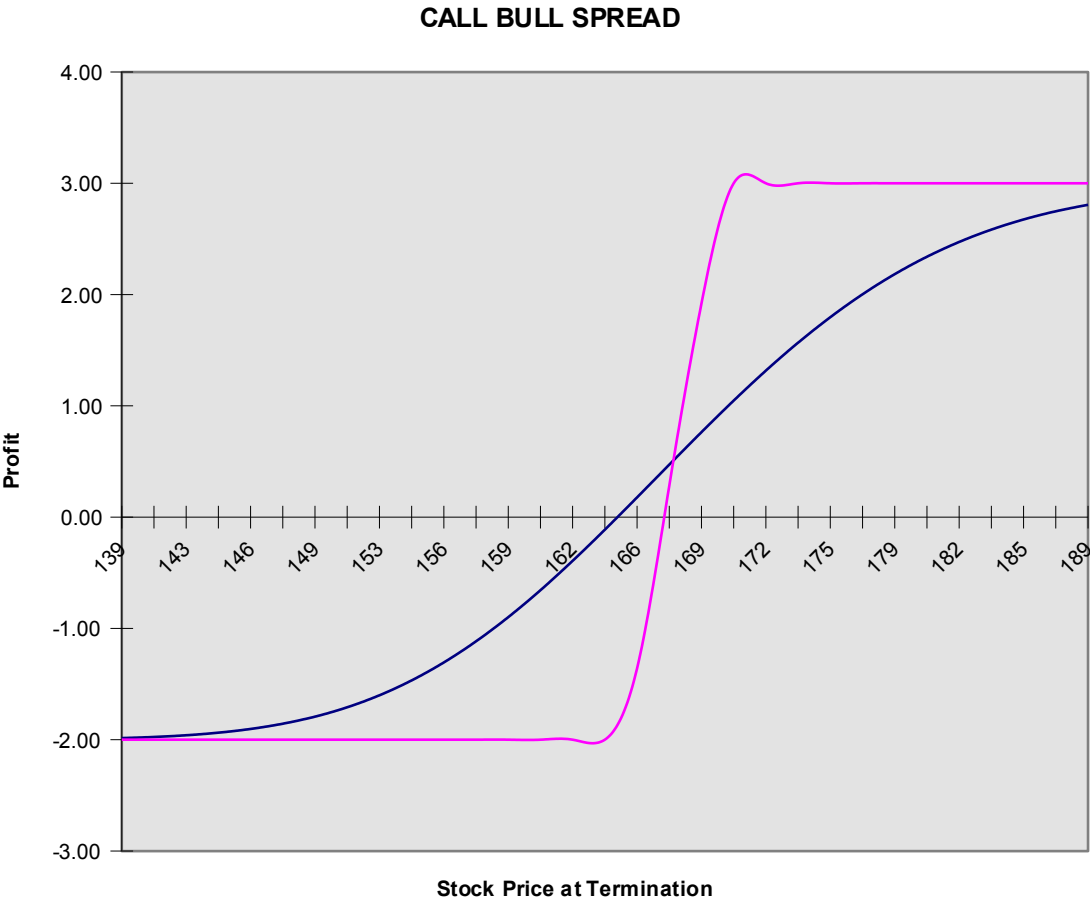
Current Date 12-Jun-95 Enter a horizon days between the current  
Call Expiration 17-Jul-95 date and the expiration date 28-Jun-95

Days from horizon to expiration 19 E-price 165 Call price 5.75 Maximum profit \$3.00  
Which as a fraction of a year is 0.0521 E-price 170 Call price 3.75 Maximum loss (\$2.00)

													Expiration	
Stock	LN(s/e)	d1	N(d1)	d2	N(d2)	Call A	LN(s/e)	d1	N(d1)	d2	N(d2)	Call B	Profit	Profit
\$139.40	-0.1686	-2.491	0.006	-2.557	0.005	\$0.019	-0.1985	-2.945	0.002	-3.011	0.001	\$0.004	(\$1.99)	(\$2.00)
\$141.04	-0.1569	-2.313	0.010	-2.379	0.009	\$0.032	-0.1868	-2.767	0.003	-2.833	0.002	\$0.008	(\$1.98)	(\$2.00)
\$142.68	-0.1453	-2.137	0.016	-2.203	0.014	\$0.054	-0.1752	-2.591	0.005	-2.657	0.004	\$0.014	(\$1.96)	(\$2.00)
\$144.32	-0.1339	-1.963	0.025	-2.029	0.021	\$0.087	-0.1638	-2.417	0.008	-2.483	0.007	\$0.024	(\$1.94)	(\$2.00)
\$145.96	-0.1226	-1.791	0.037	-1.857	0.032	\$0.137	-0.1525	-2.245	0.012	-2.311	0.010	\$0.040	(\$1.90)	(\$2.00)
\$147.60	-0.1114	-1.621	0.052	-1.687	0.046	\$0.209	-0.1413	-2.075	0.019	-2.141	0.016	\$0.066	(\$1.86)	(\$2.00)
\$149.24	-0.1004	-1.453	0.073	-1.519	0.064	\$0.312	-0.1302	-1.907	0.028	-1.973	0.024	\$0.104	(\$1.79)	(\$2.00)
\$150.88	-0.0895	-1.287	0.099	-1.353	0.088	\$0.452	-0.1193	-1.741	0.041	-1.807	0.035	\$0.160	(\$1.71)	(\$2.00)
\$152.52	-0.0786	-1.122	0.131	-1.188	0.117	\$0.640	-0.1085	-1.577	0.057	-1.642	0.050	\$0.240	(\$1.60)	(\$2.00)
\$154.16	-0.0680	-0.960	0.169	-1.025	0.153	\$0.884	-0.0978	-1.414	0.079	-1.480	0.069	\$0.351	(\$1.47)	(\$2.00)
\$155.80	-0.0574	-0.799	0.212	-0.864	0.194	\$1.196	-0.0872	-1.253	0.105	-1.319	0.094	\$0.501	(\$1.31)	(\$2.00)
\$157.44	-0.0469	-0.639	0.261	-0.705	0.240	\$1.584	-0.0768	-1.094	0.137	-1.159	0.123	\$0.699	(\$1.12)	(\$2.00)
\$159.08	-0.0365	-0.482	0.315	-0.547	0.292	\$2.056	-0.0664	-0.936	0.175	-1.002	0.158	\$0.954	(\$0.90)	(\$2.00)
\$160.72	-0.0263	-0.326	0.372	-0.391	0.348	\$2.619	-0.0561	-0.780	0.218	-0.846	0.199	\$1.275	(\$0.66)	(\$2.00)
\$162.36	-0.0161	-0.171	0.432	-0.237	0.406	\$3.278	-0.0460	-0.625	0.266	-0.691	0.245	\$1.671	(\$0.39)	(\$2.00)
\$164.00	-0.0061	-0.018	0.493	-0.084	0.467	\$4.036	-0.0359	-0.472	0.318	-0.538	0.295	\$2.149	(\$0.11)	(\$2.00)
\$165.64	0.0039	0.133	0.553	0.067	0.527	\$4.894	-0.0260	-0.321	0.374	-0.387	0.349	\$2.717	\$0.18	(\$1.36)
\$167.28	0.0137	0.283	0.611	0.217	0.586	\$5.849	-0.0161	-0.171	0.432	-0.237	0.406	\$3.377	\$0.47	\$0.28
\$168.92	0.0235	0.431	0.667	0.366	0.643	\$6.898	-0.0064	-0.023	0.491	-0.089	0.465	\$4.134	\$0.76	\$1.92
\$170.56	0.0331	0.578	0.718	0.513	0.696	\$8.034	0.0033	0.124	0.549	0.058	0.523	\$4.987	\$1.05	\$3.00
\$172.20	0.0427	0.724	0.765	0.658	0.745	\$9.252	0.0129	0.270	0.606	0.204	0.581	\$5.935	\$1.32	\$3.00
\$173.84	0.0522	0.868	0.807	0.802	0.789	\$10.542	0.0223	0.414	0.661	0.348	0.636	\$6.975	\$1.57	\$3.00
\$175.48	0.0616	1.011	0.844	0.945	0.828	\$11.897	0.0317	0.557	0.711	0.491	0.688	\$8.100	\$1.80	\$3.00
\$177.12	0.0709	1.153	0.875	1.087	0.861	\$13.308	0.0410	0.698	0.758	0.633	0.737	\$9.305	\$2.00	\$3.00
\$178.76	0.0801	1.293	0.902	1.227	0.890	\$14.766	0.0502	0.839	0.799	0.773	0.780	\$10.582	\$2.18	\$3.00
\$180.40	0.0892	1.432	0.924	1.366	0.914	\$16.263	0.0594	0.978	0.836	0.912	0.819	\$11.923	\$2.34	\$3.00
\$182.04	0.0983	1.569	0.942	1.504	0.934	\$17.794	0.0684	1.115	0.868	1.049	0.853	\$13.321	\$2.47	\$3.00
\$183.68	0.1072	1.706	0.956	1.640	0.950	\$19.350	0.0774	1.252	0.895	1.186	0.882	\$14.767	\$2.58	\$3.00
\$185.32	0.1161	1.841	0.967	1.775	0.962	\$20.928	0.0863	1.387	0.917	1.321	0.907	\$16.253	\$2.67	\$3.00
\$186.96	0.1249	1.975	0.976	1.909	0.972	\$22.521	0.0951	1.521	0.936	1.455	0.927	\$17.773	\$2.75	\$3.00
\$188.60	0.1337	2.108	0.982	2.042	0.979	\$24.127	0.1038	1.654	0.951	1.588	0.944	\$19.321	\$2.81	\$3.00

C-Bull Graph

Buy a 17-Jul-95      165 Call      AND      Sell a 16-Jul-95      170 Call



Current Date 12-Jun-95  
Horizon date 28-Jun-95

The breakeven stock price is \$167.00  
The current stock price is \$164.00