

MA374-LAB3
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Roll:11012323

1.

Observation:

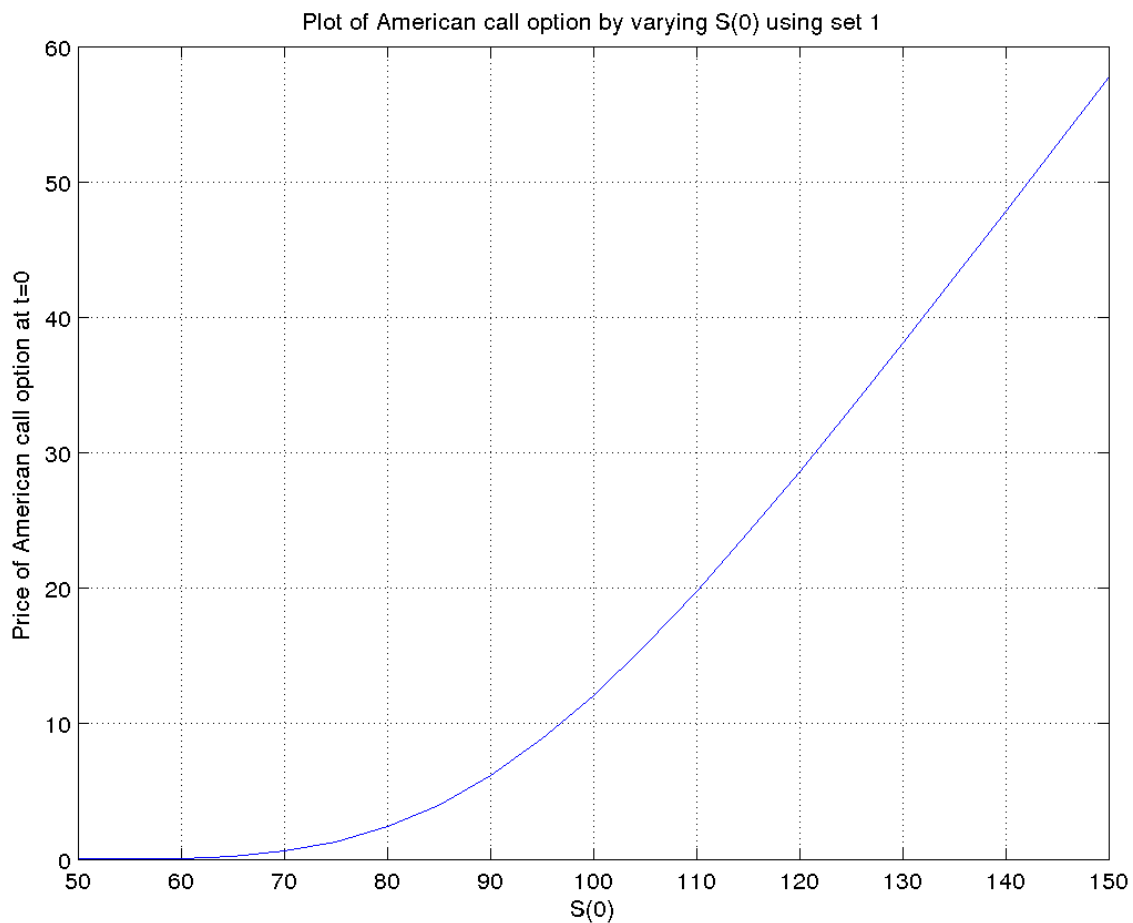
For set 1 The value of American call is 12.08538001.

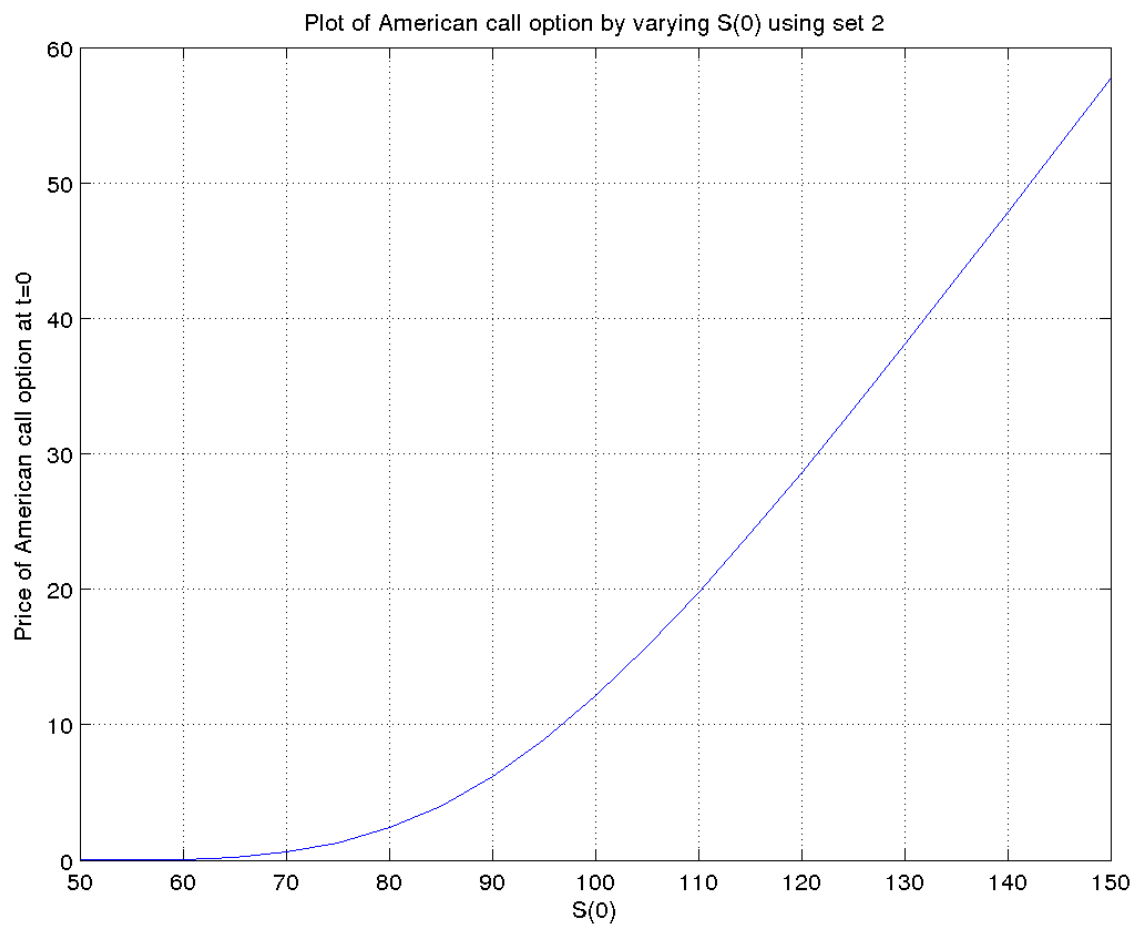
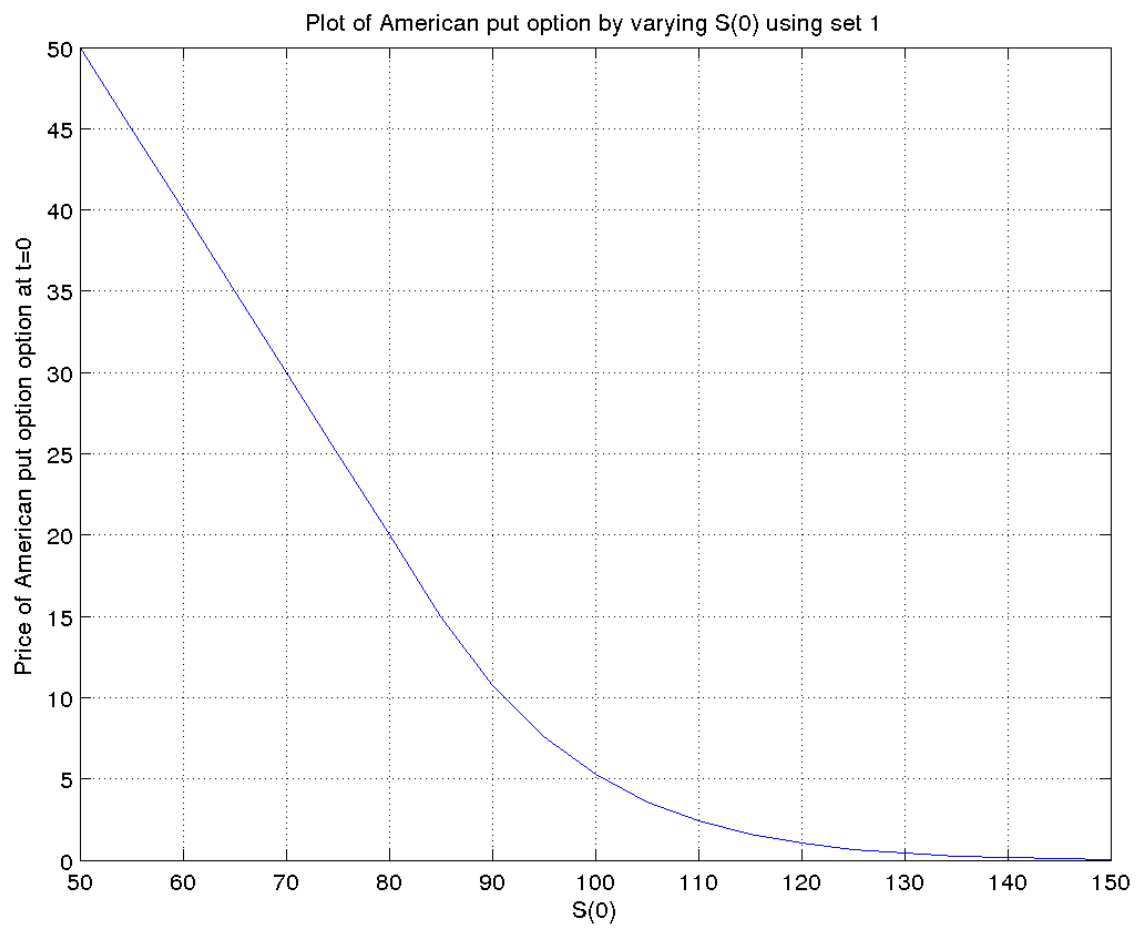
For set 1 The value of American put is 5.26674760.

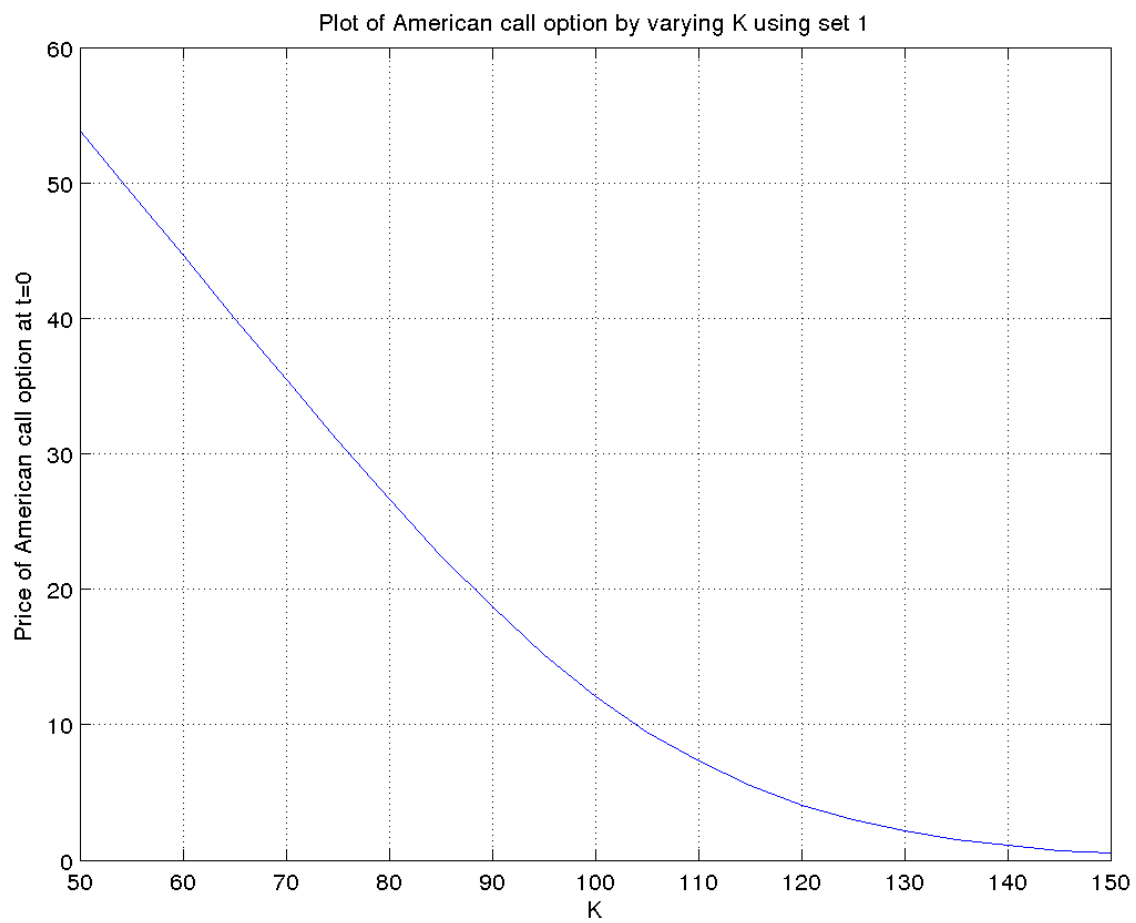
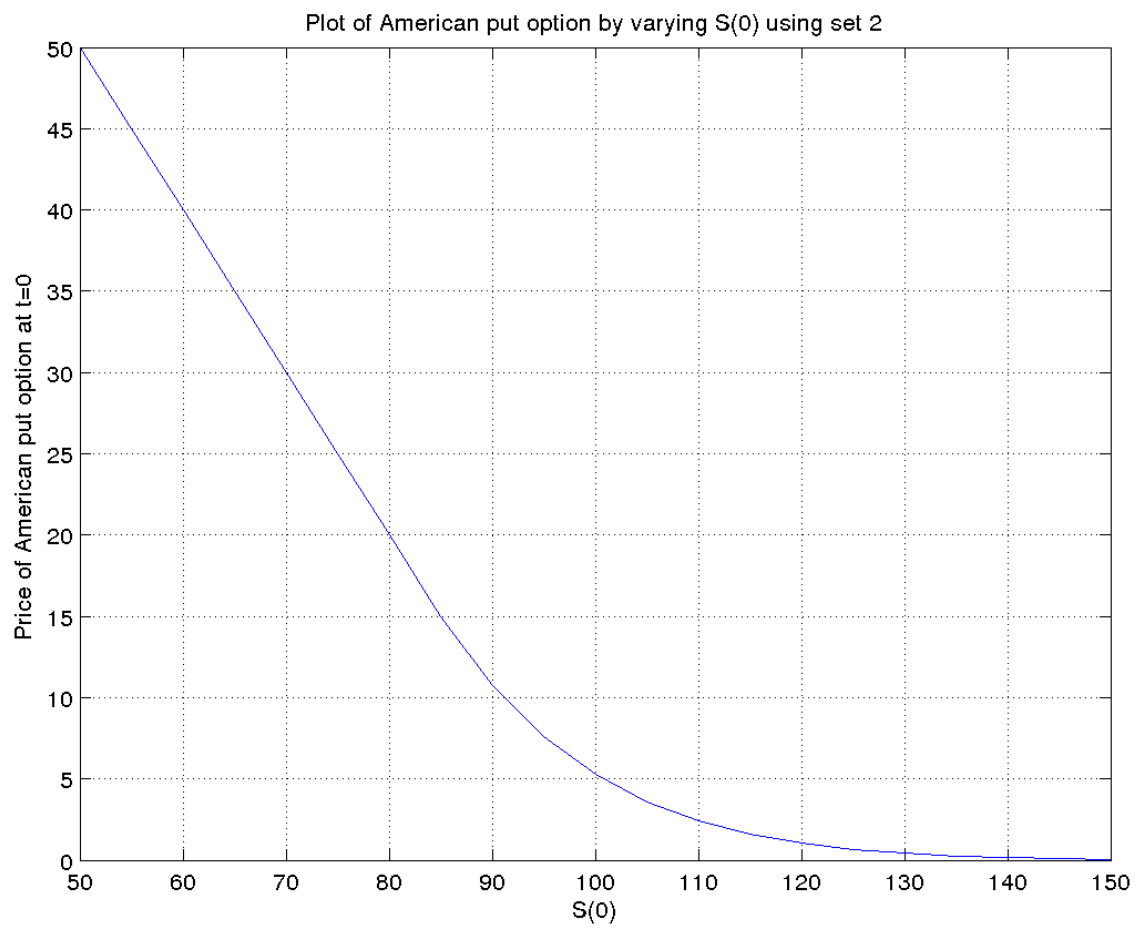
For set 2 The value of American call is 12.12304707.

For set 2 The value of American put is 5.27983715.

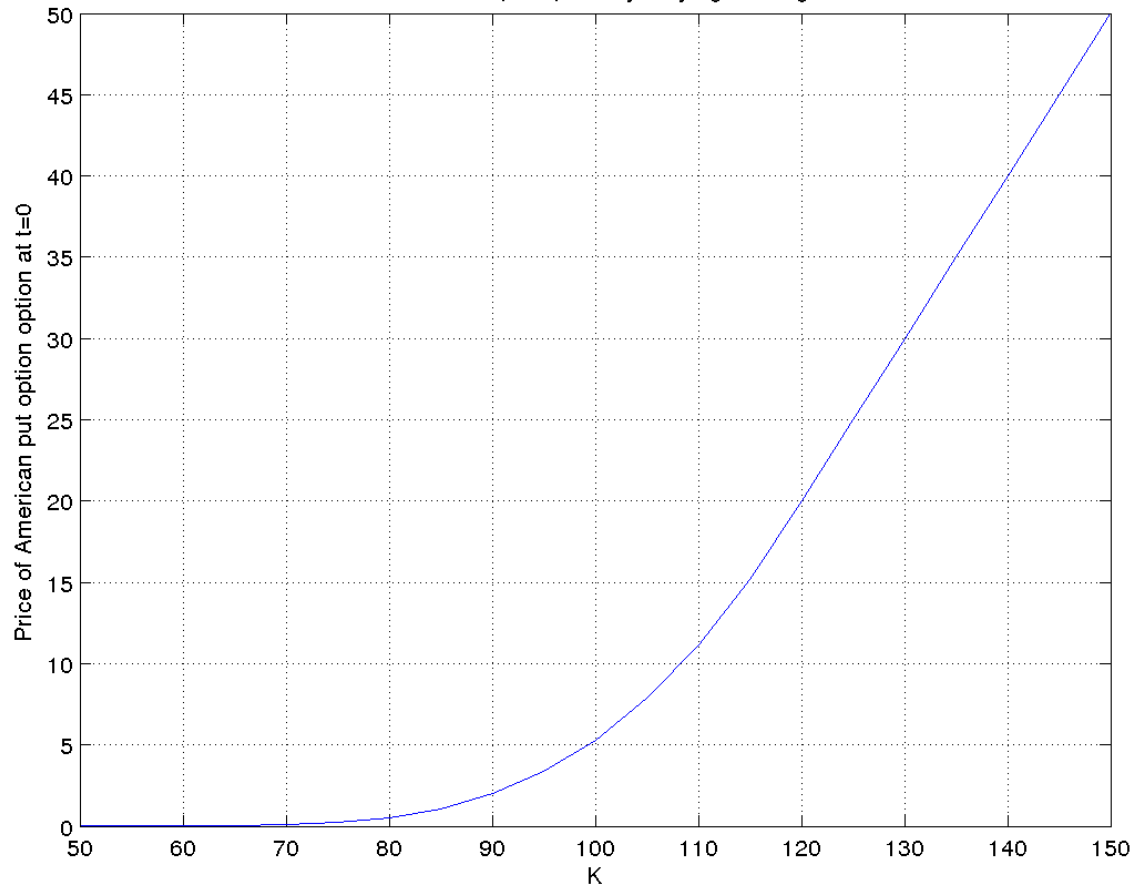
Graphs:



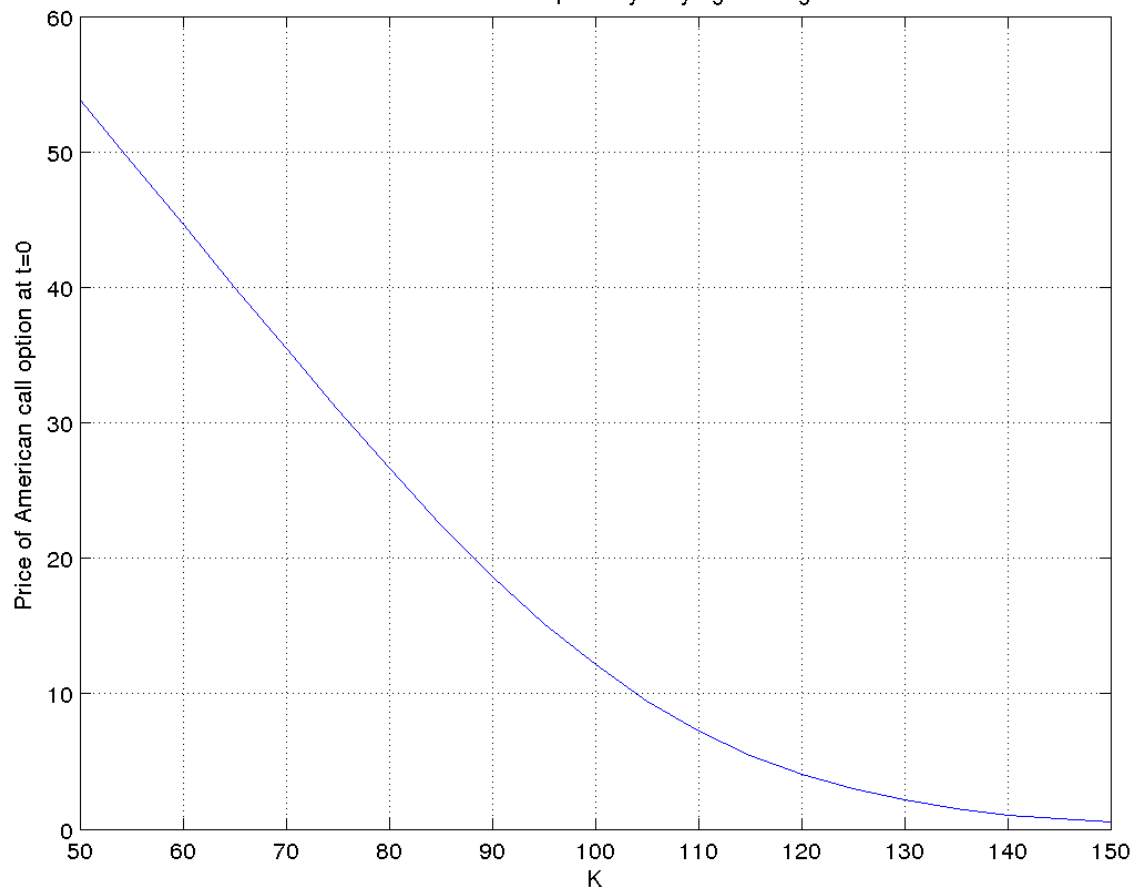


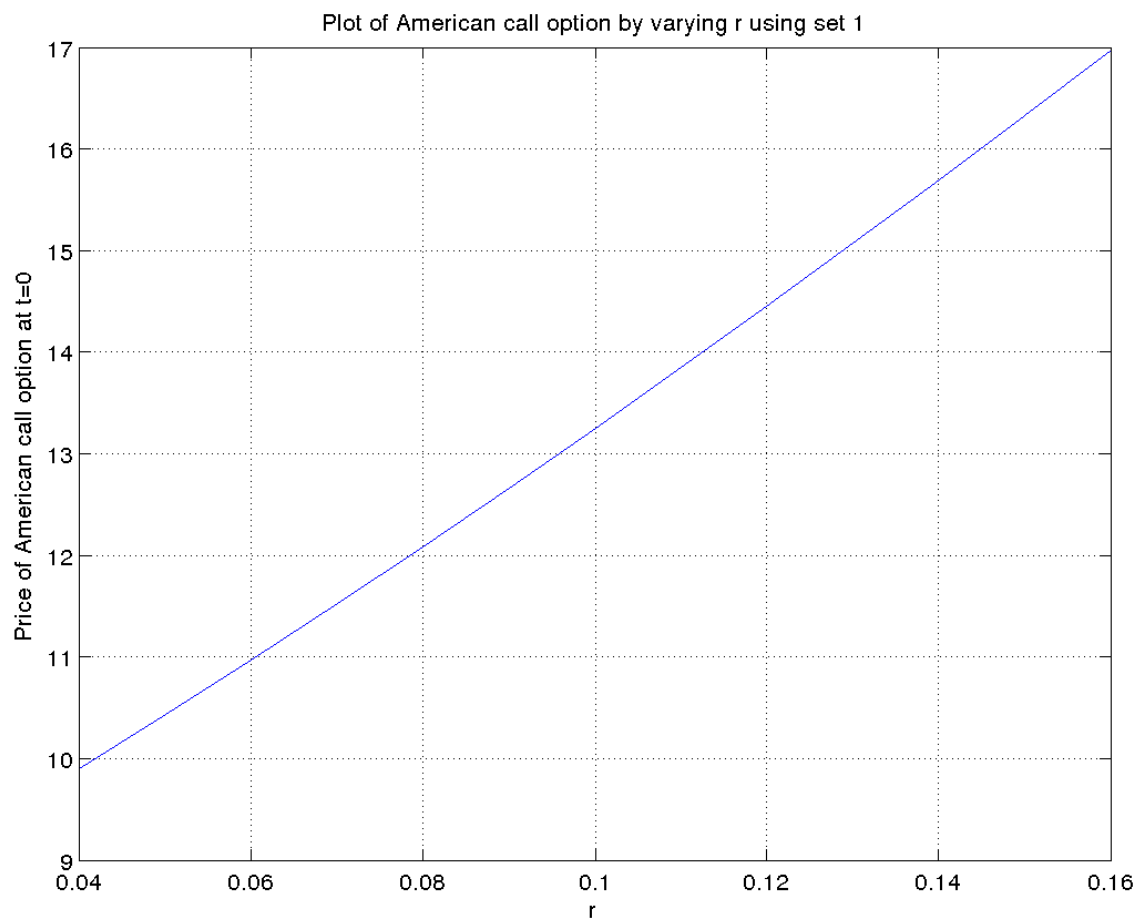
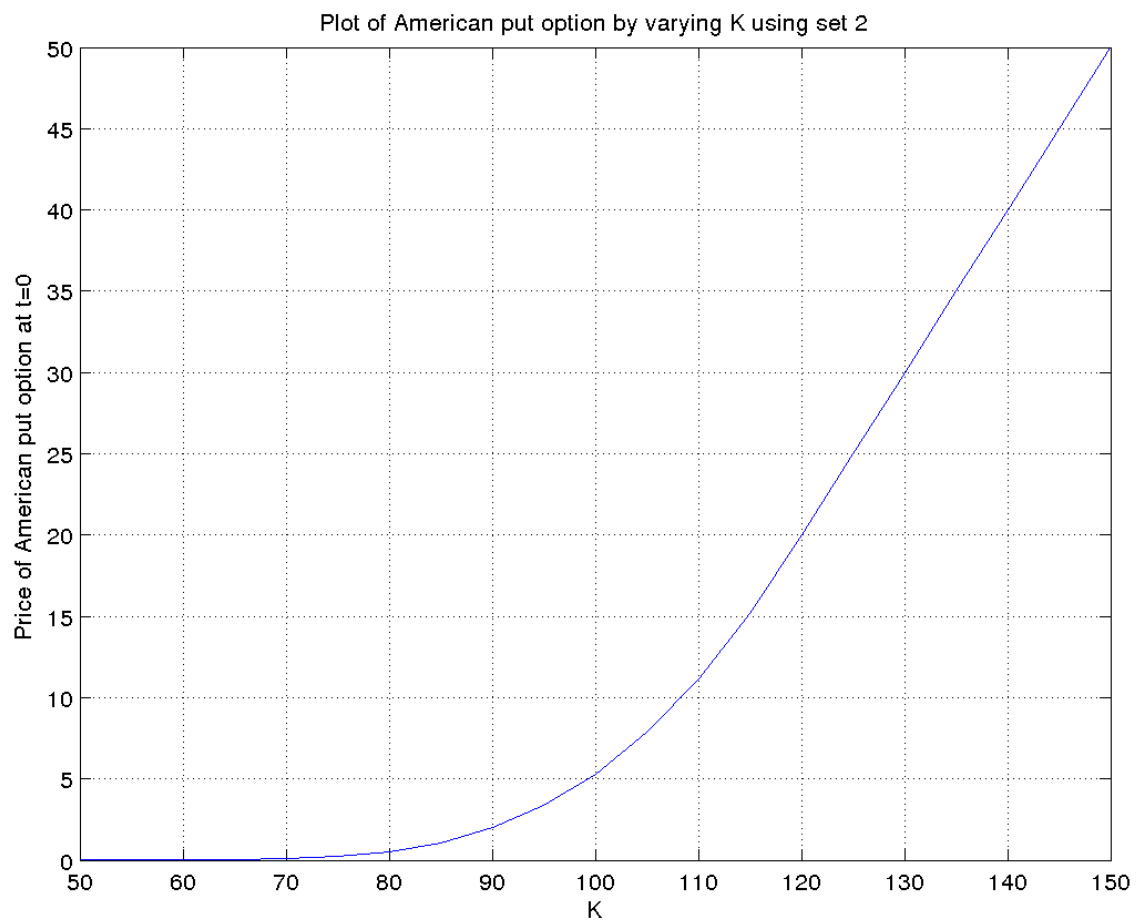


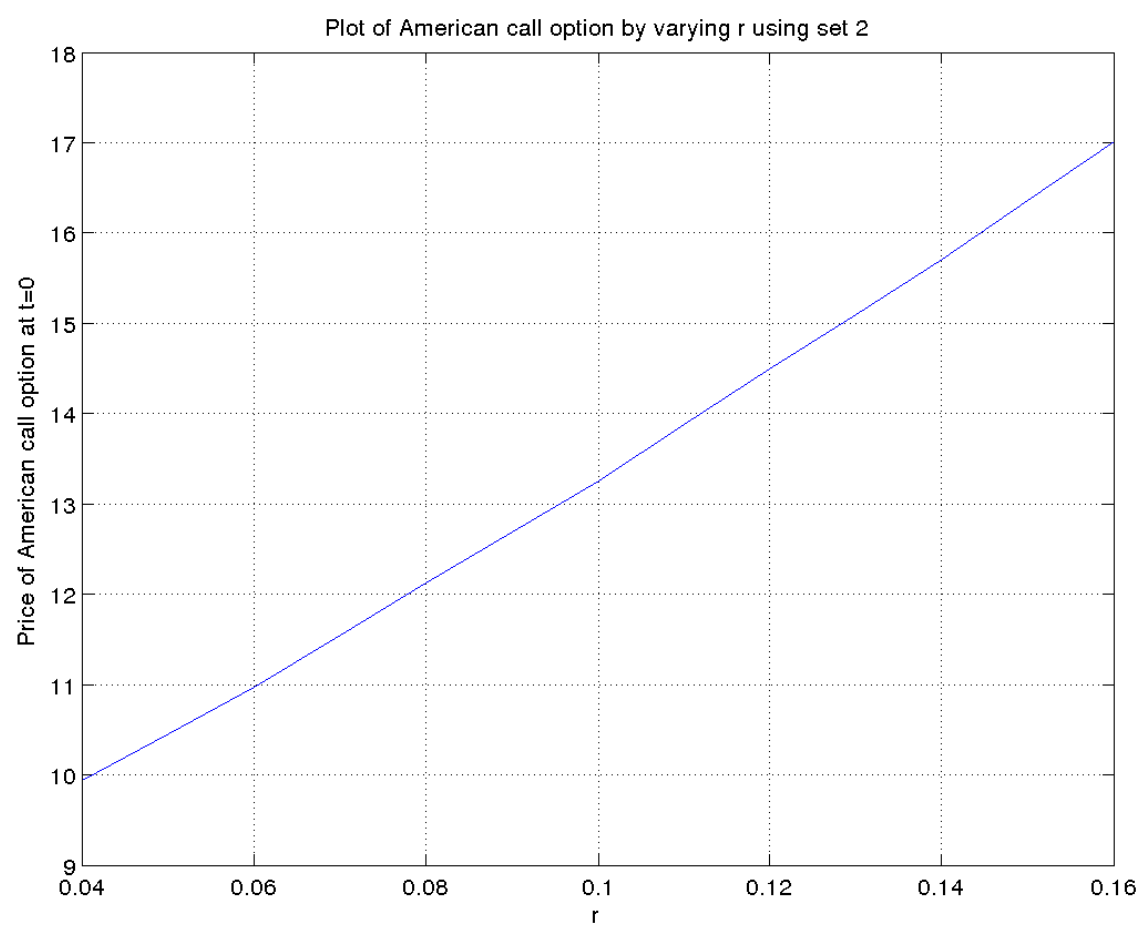
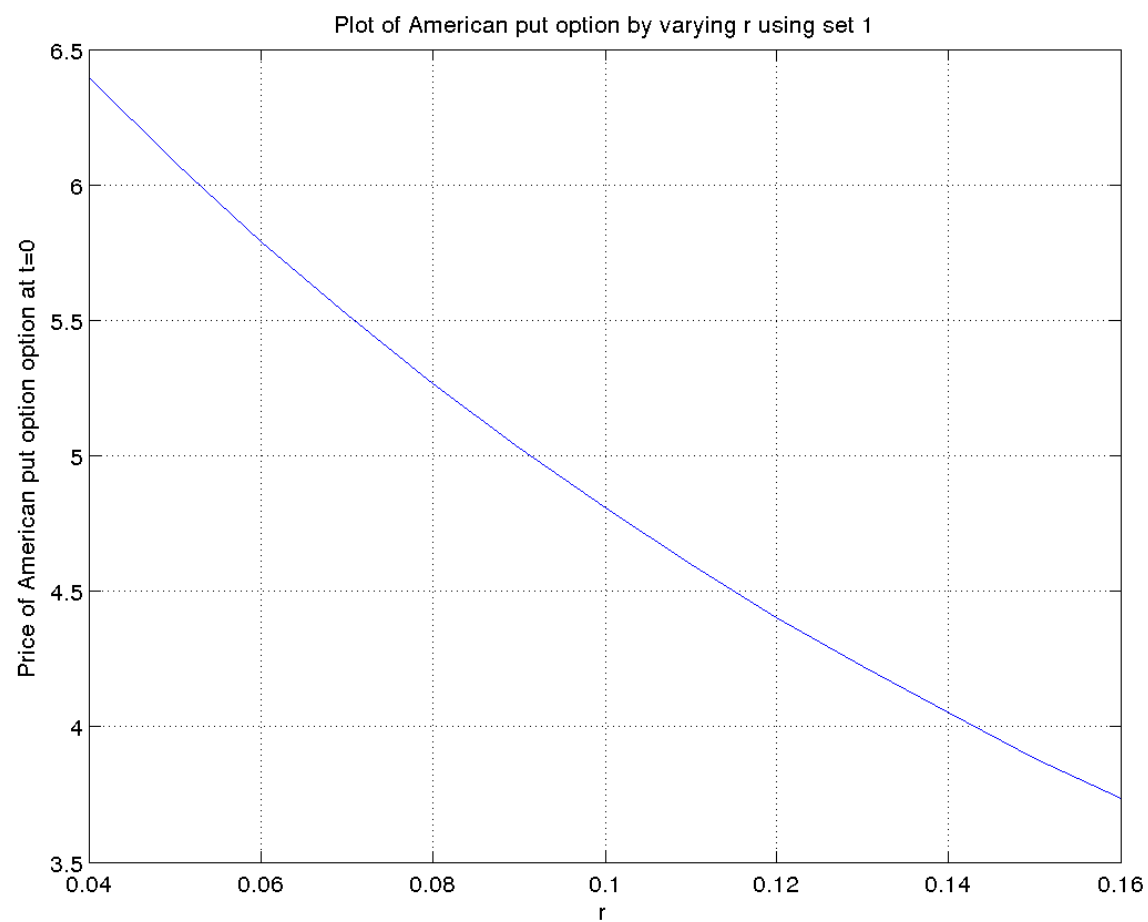
Plot of American put option by varying K using set 1

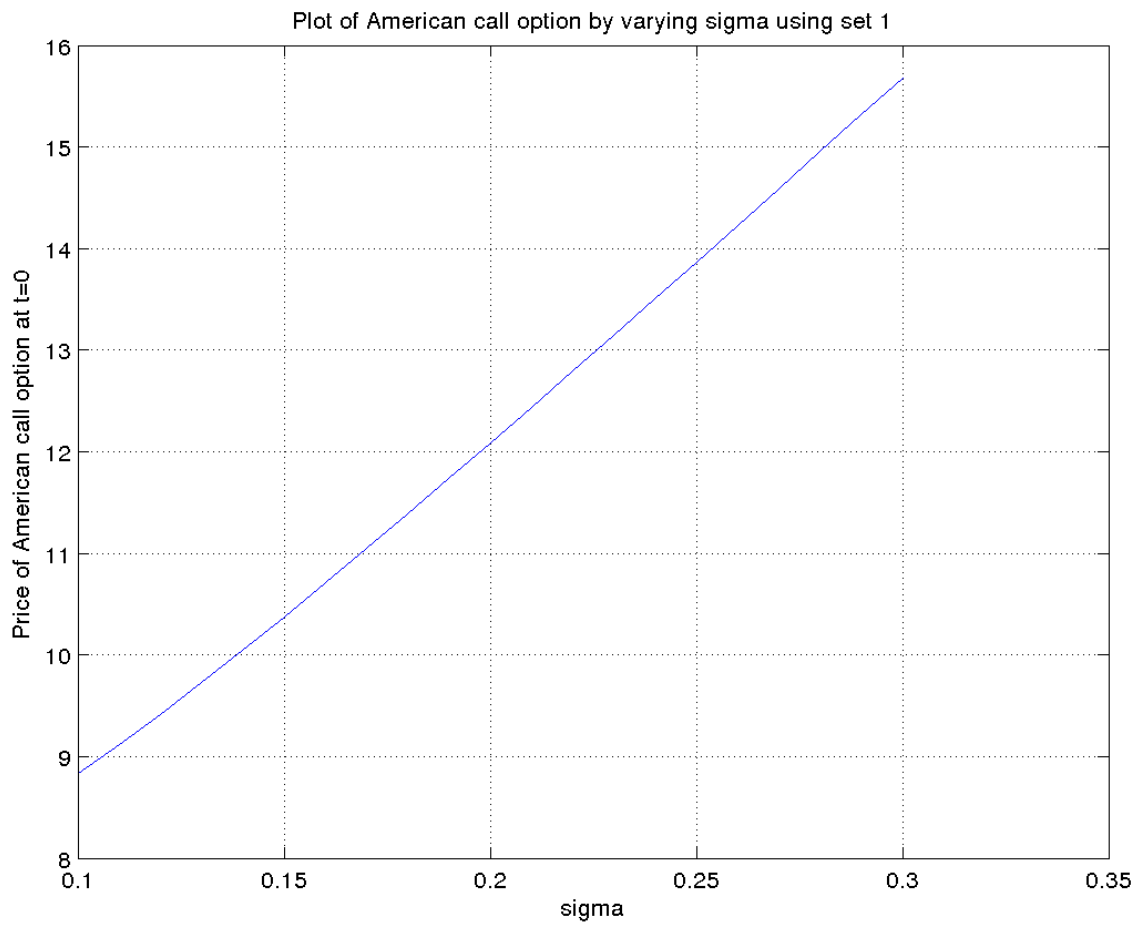
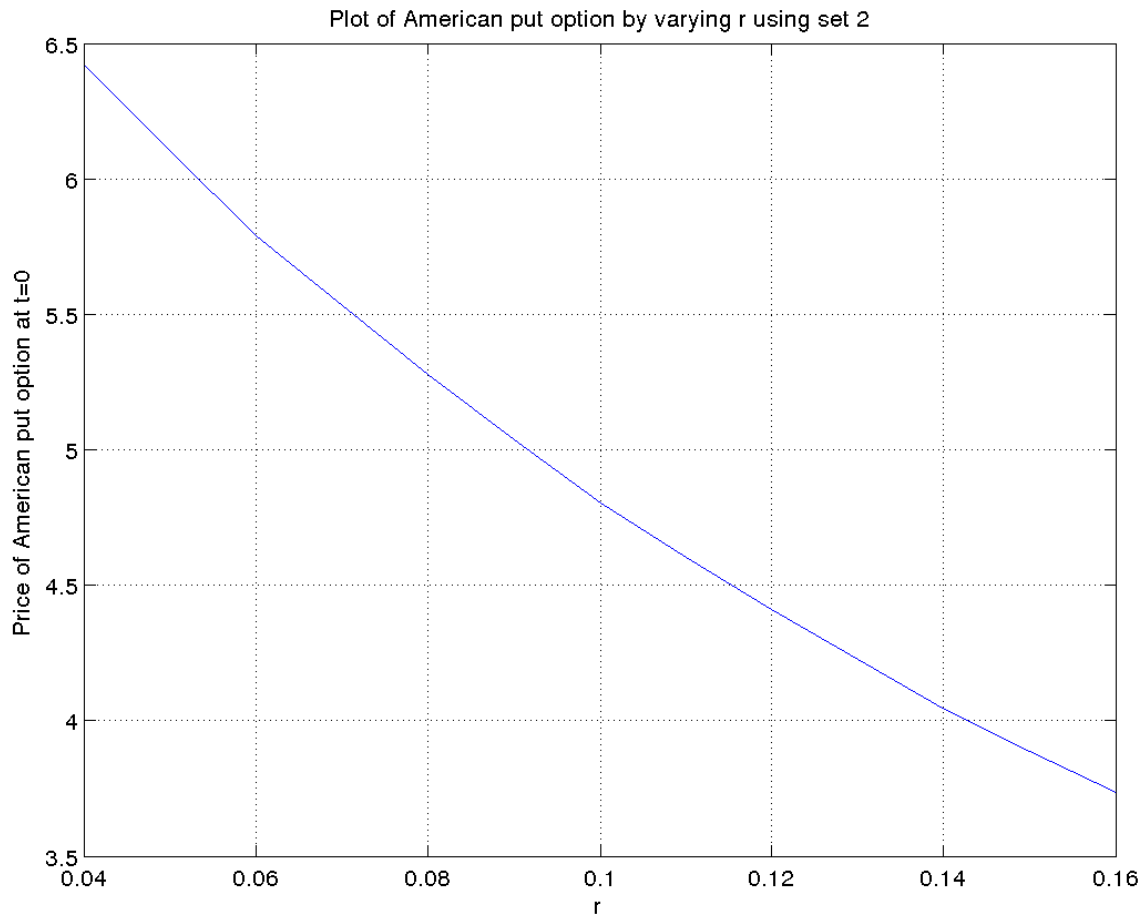


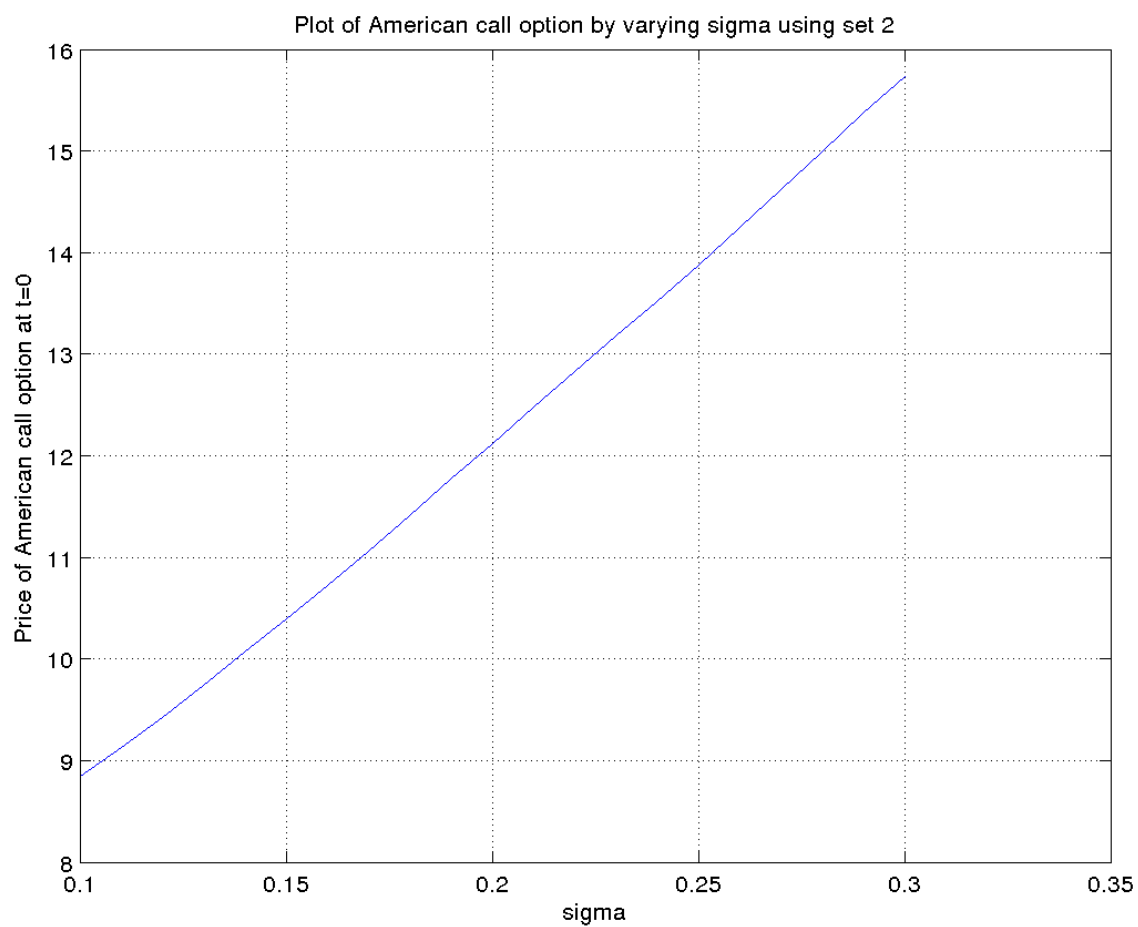
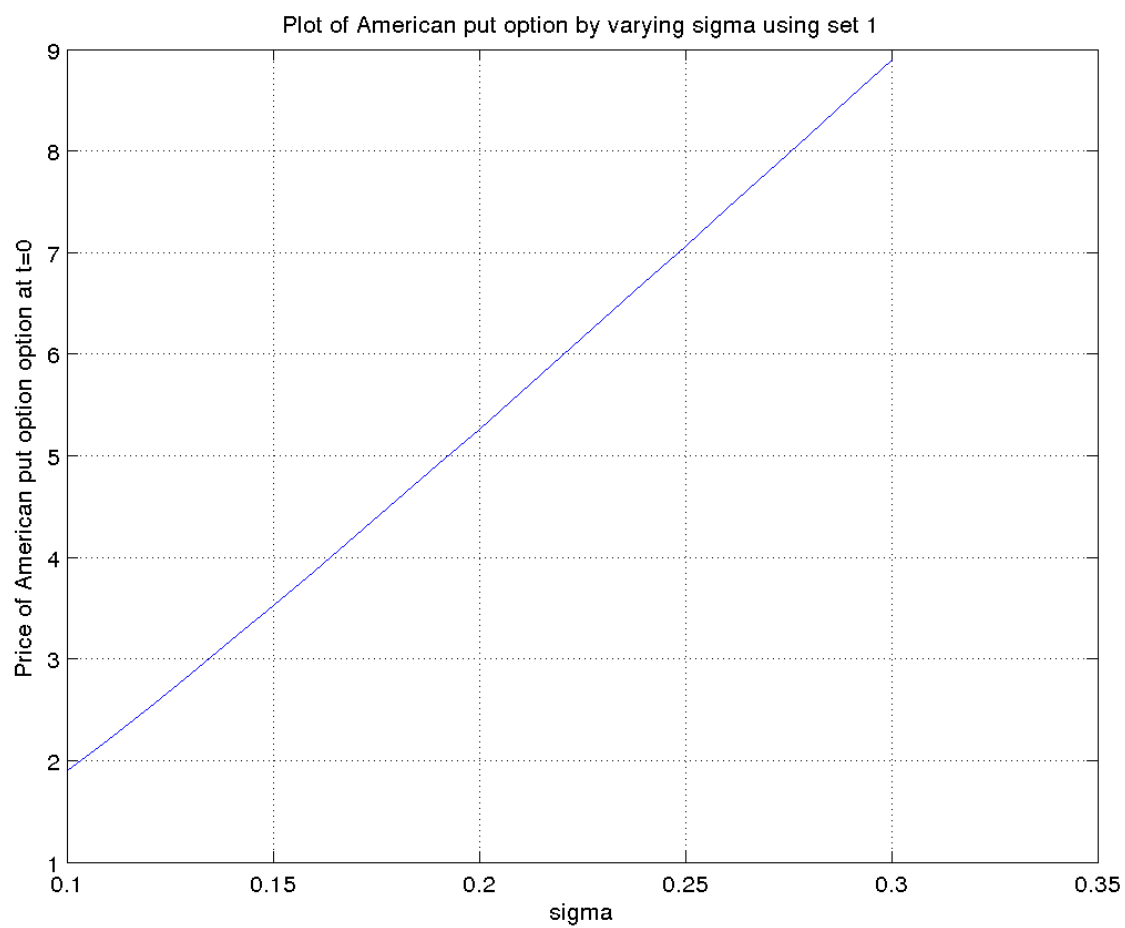
Plot of American call option by varying K using set 2

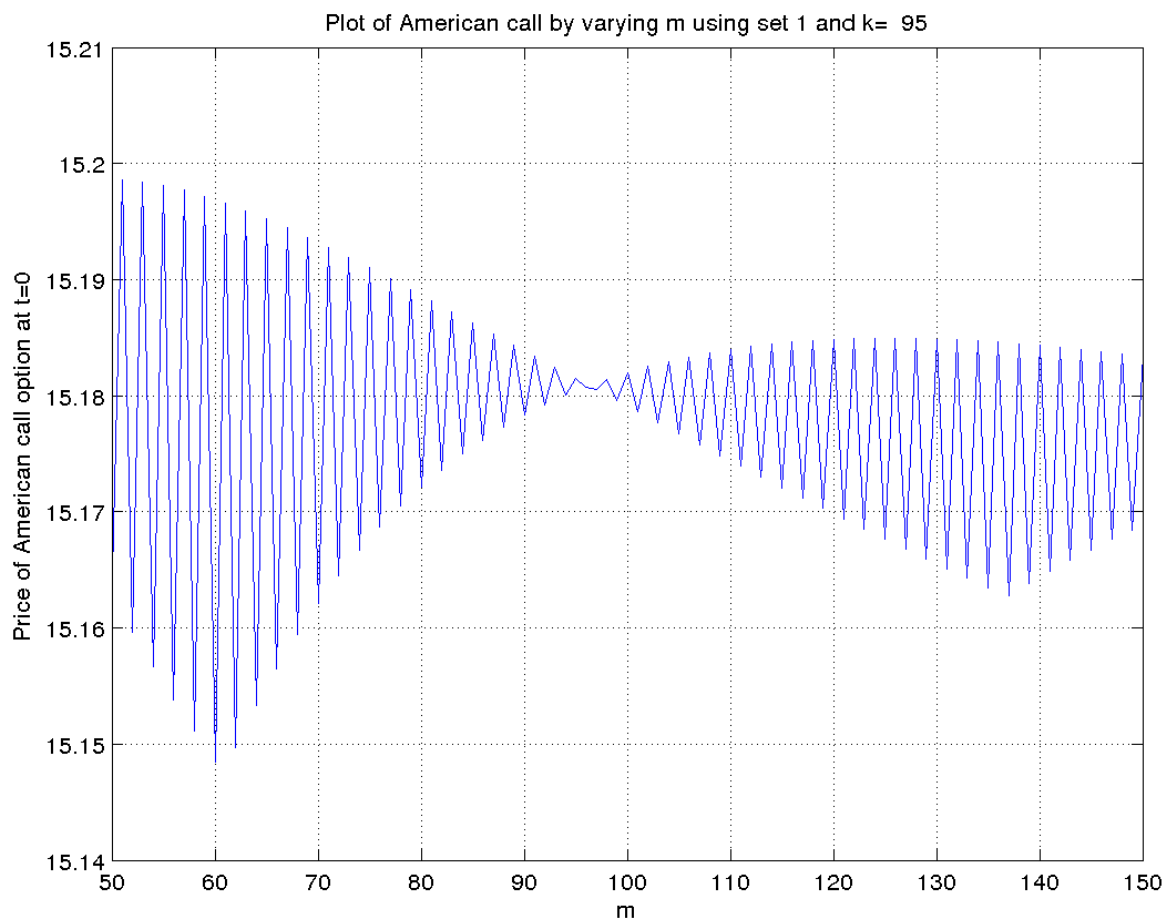
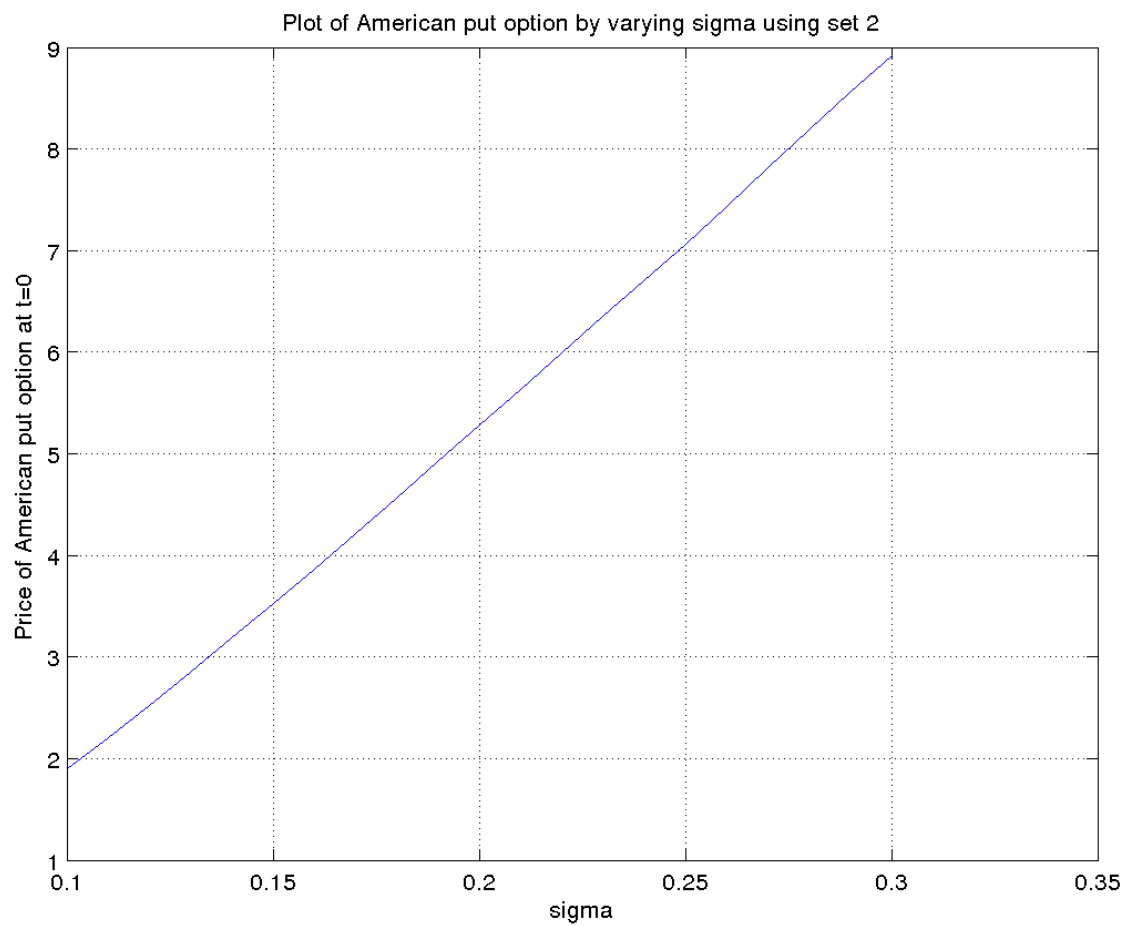


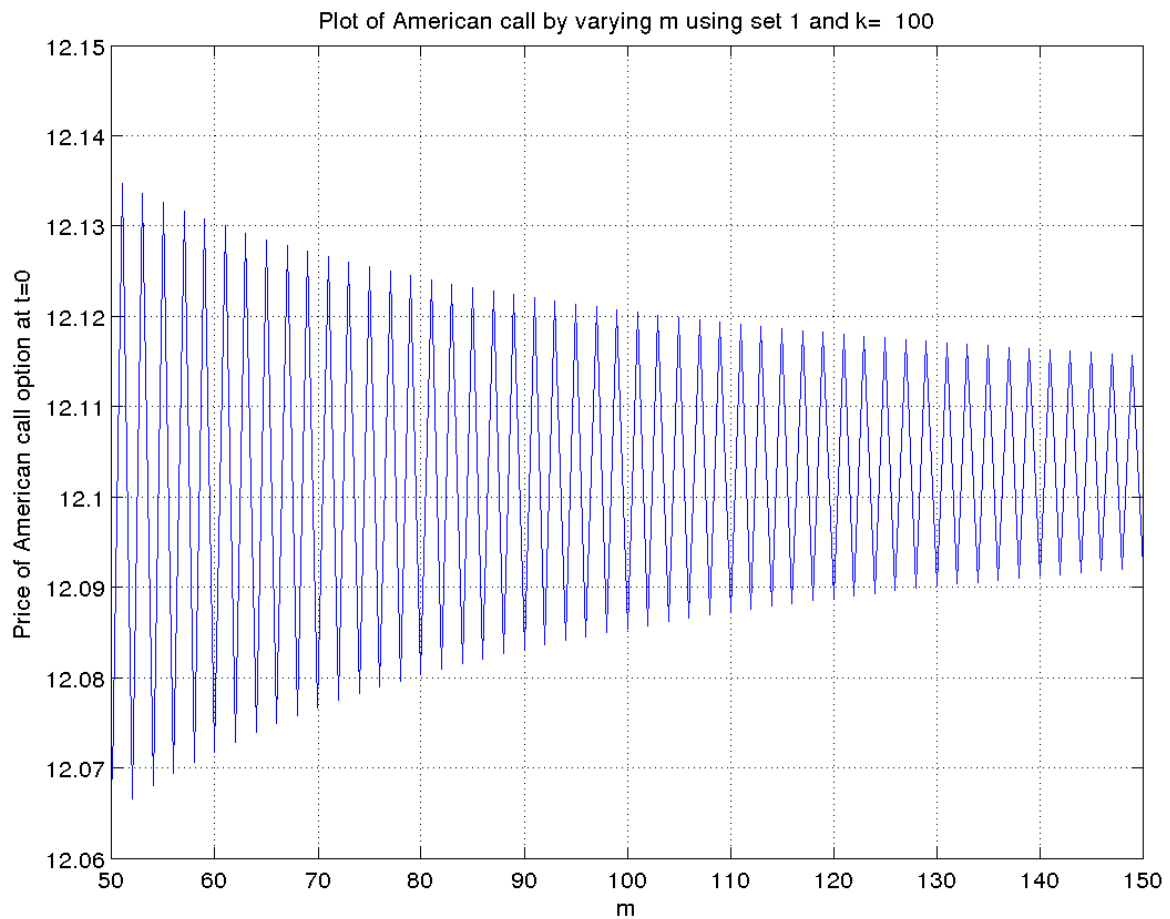
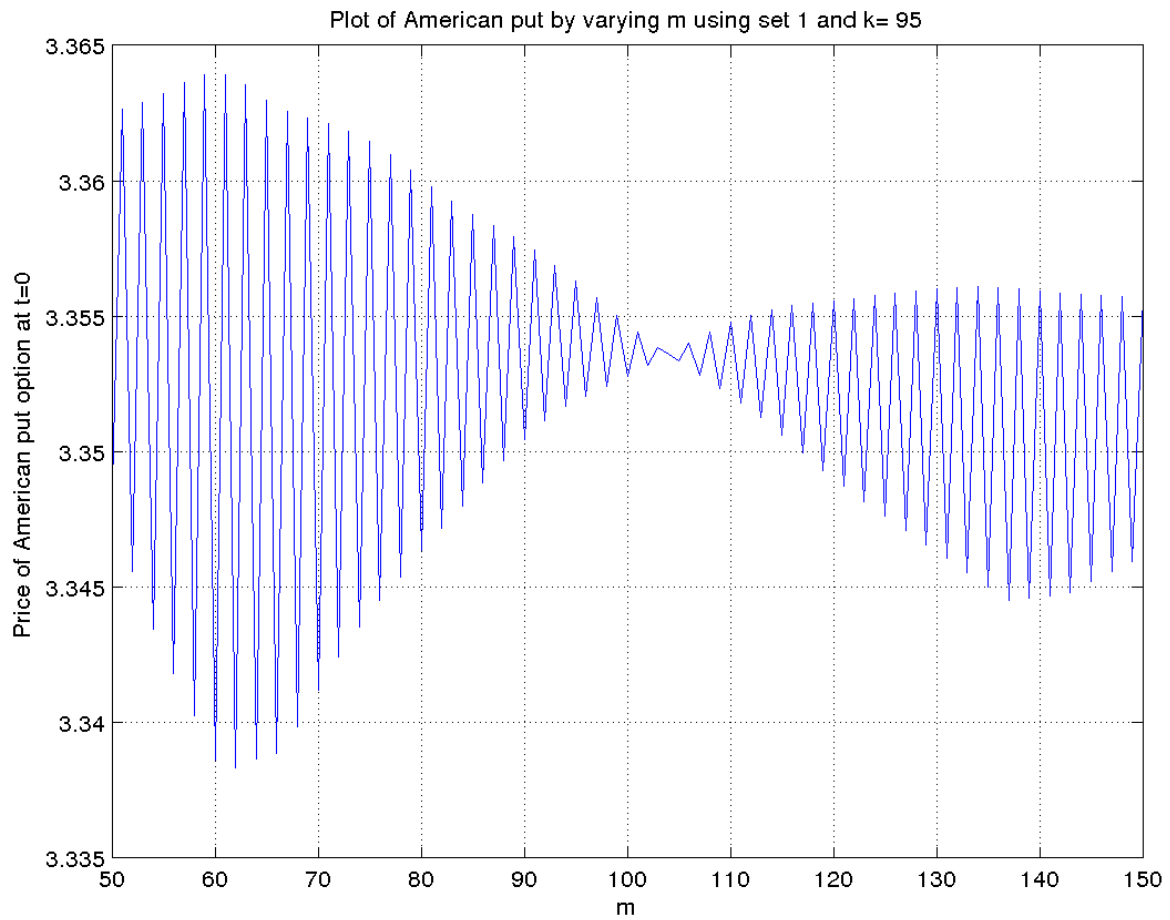


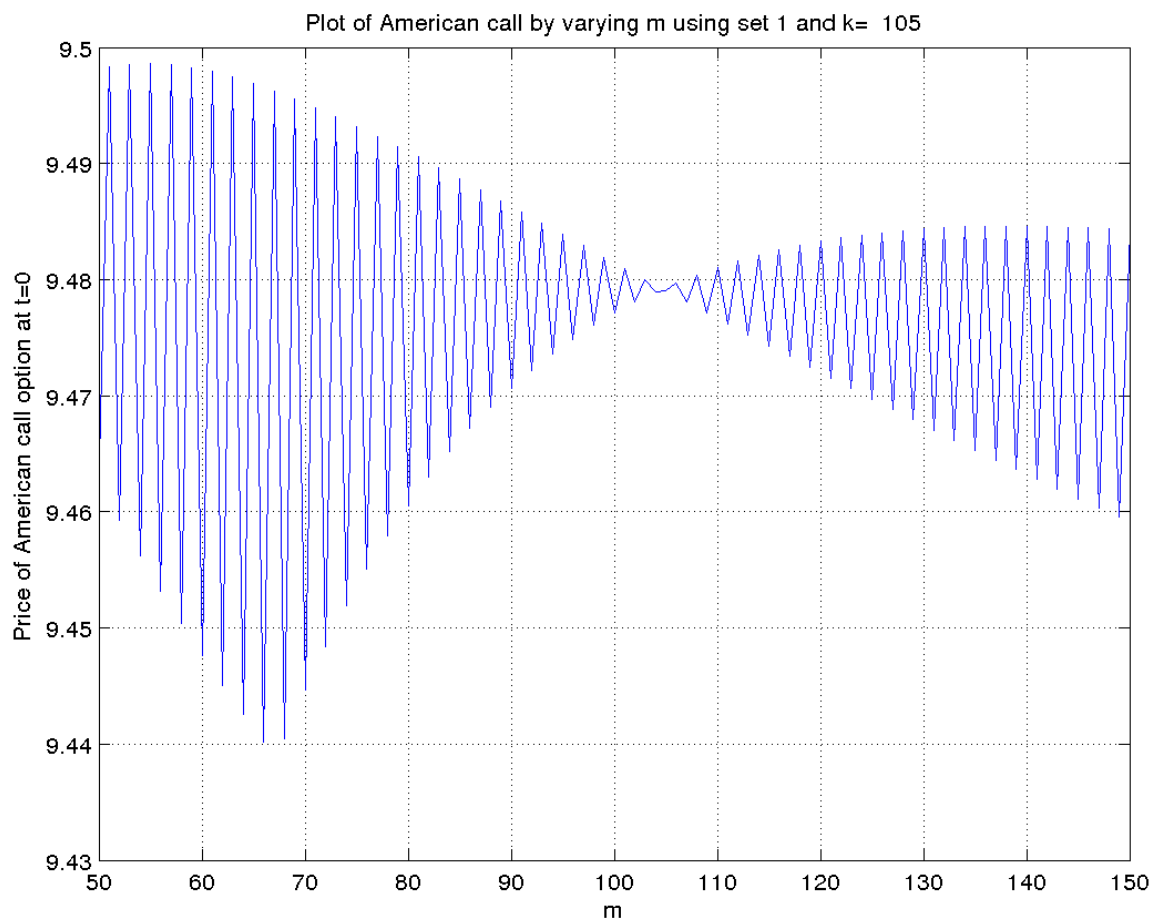
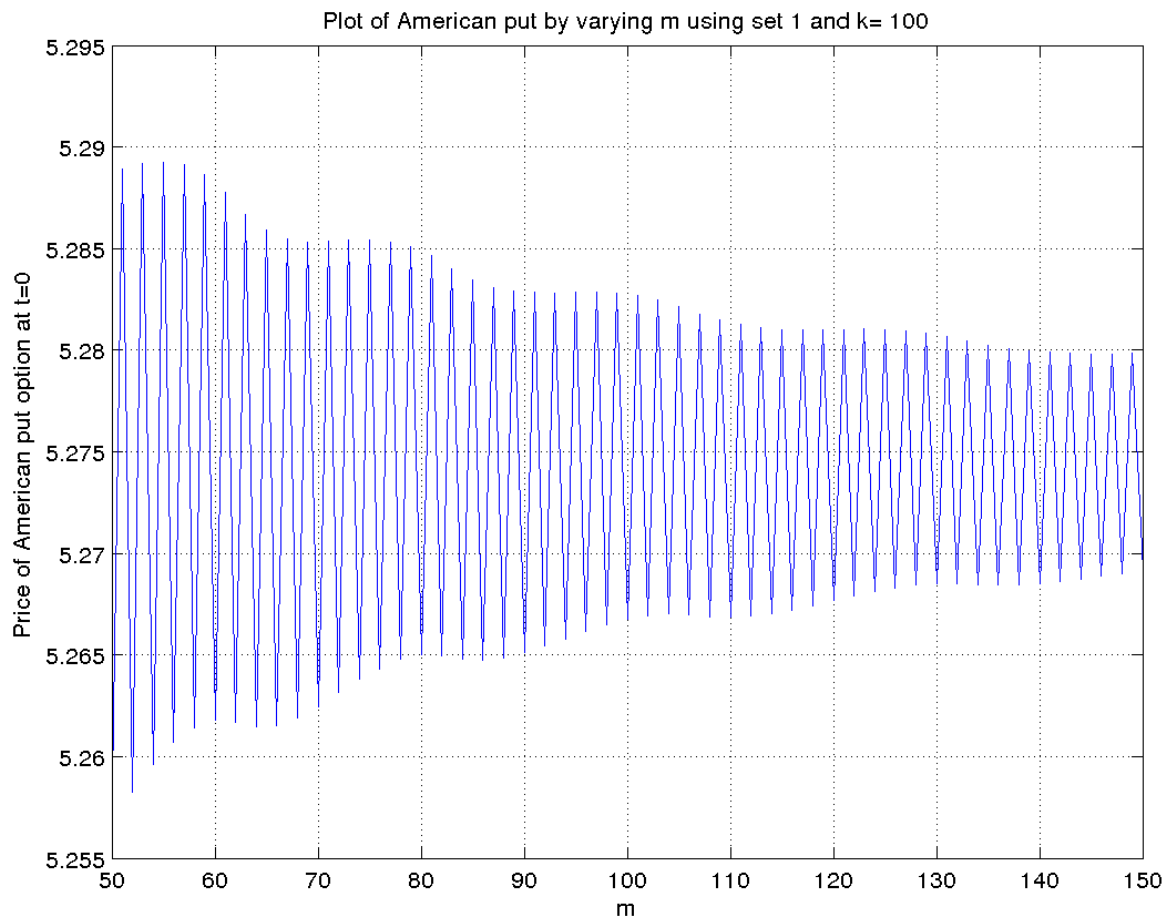


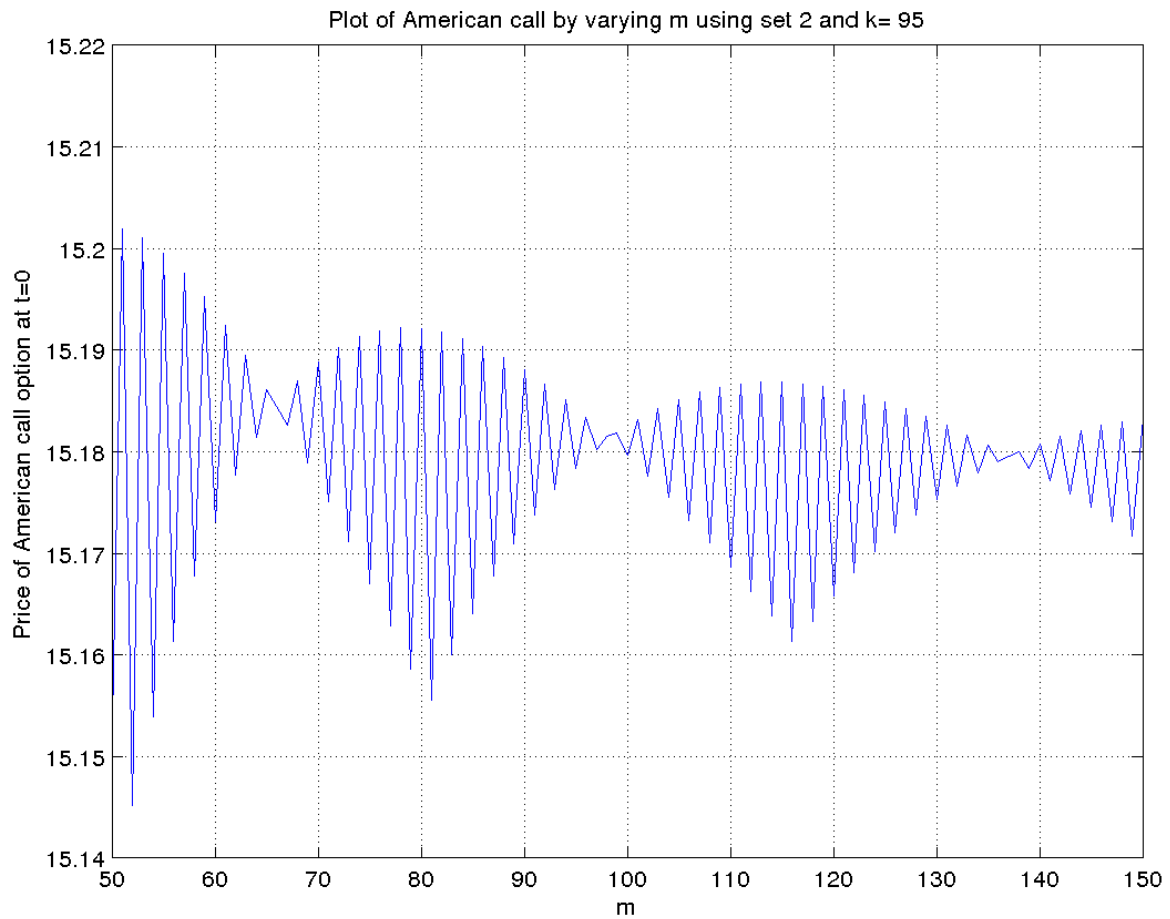
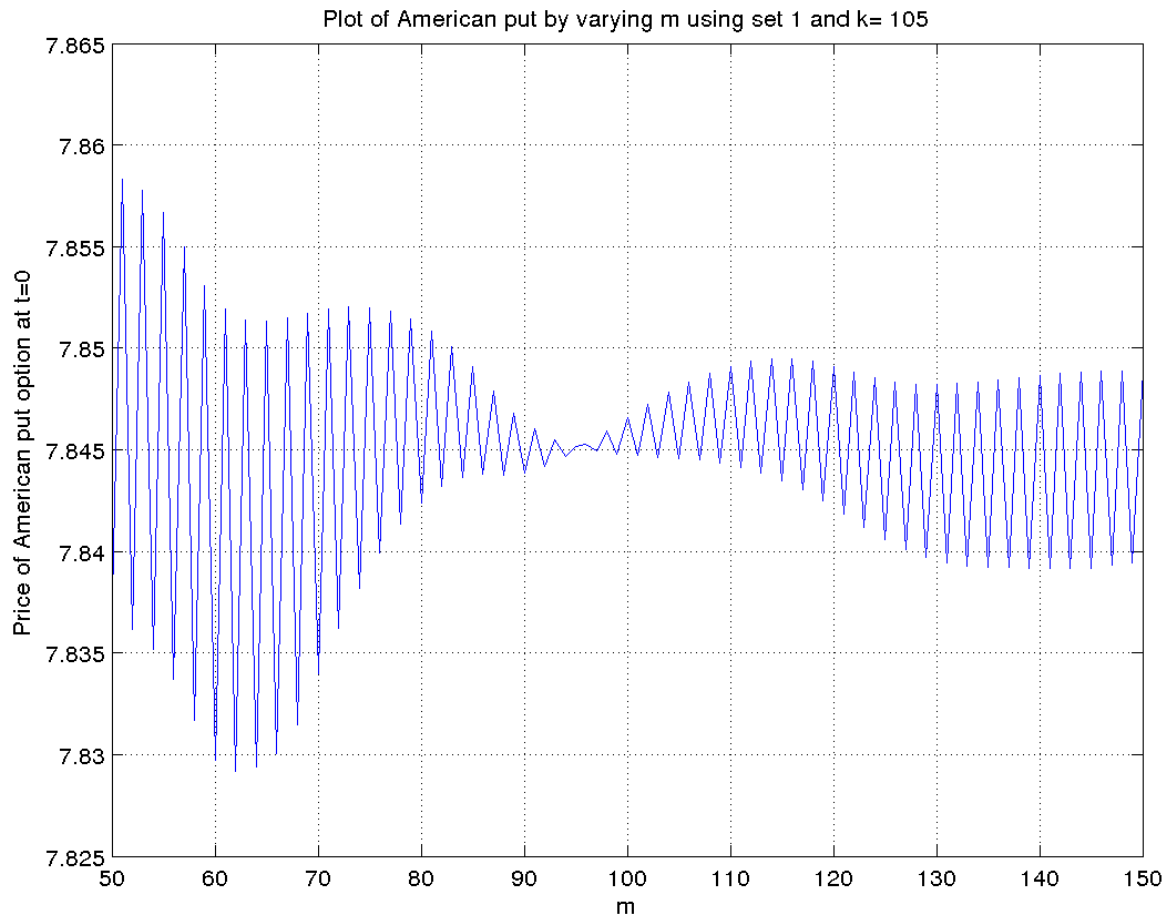


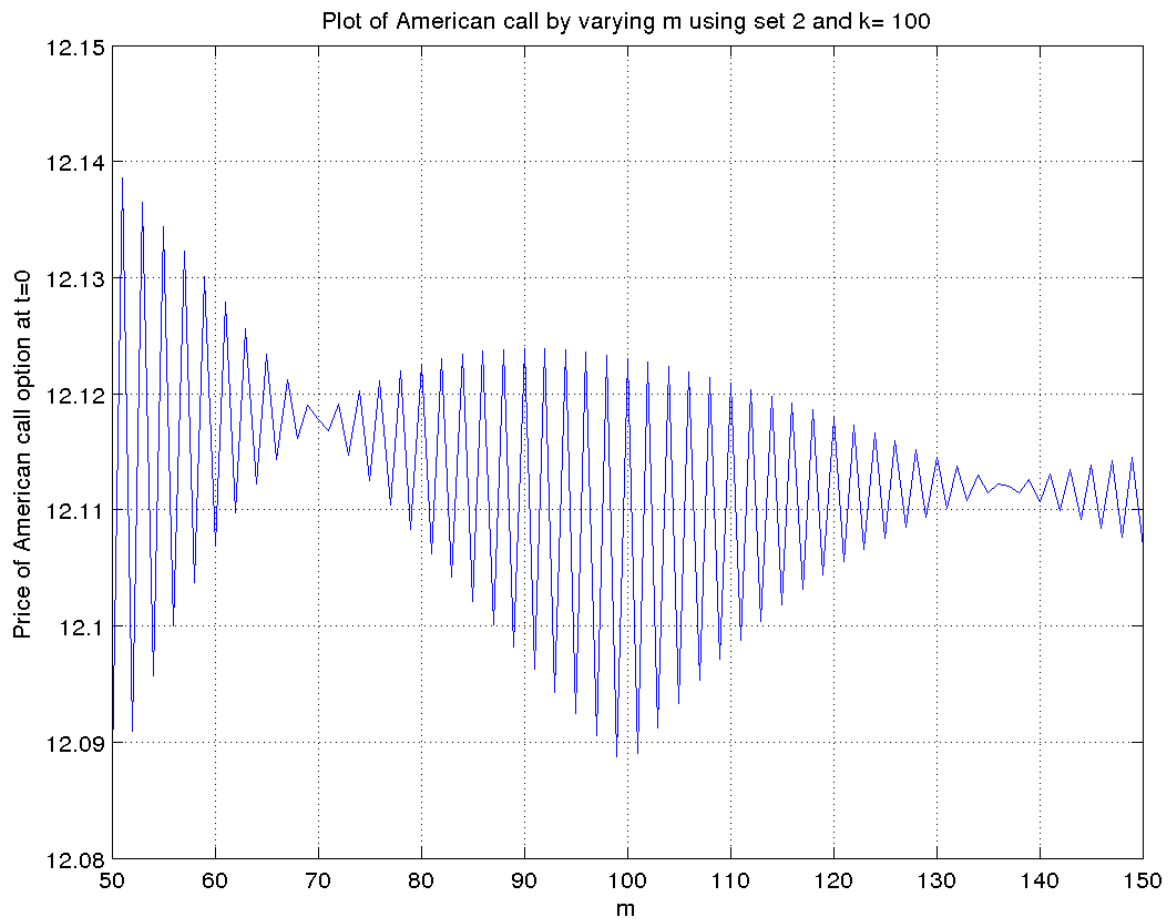
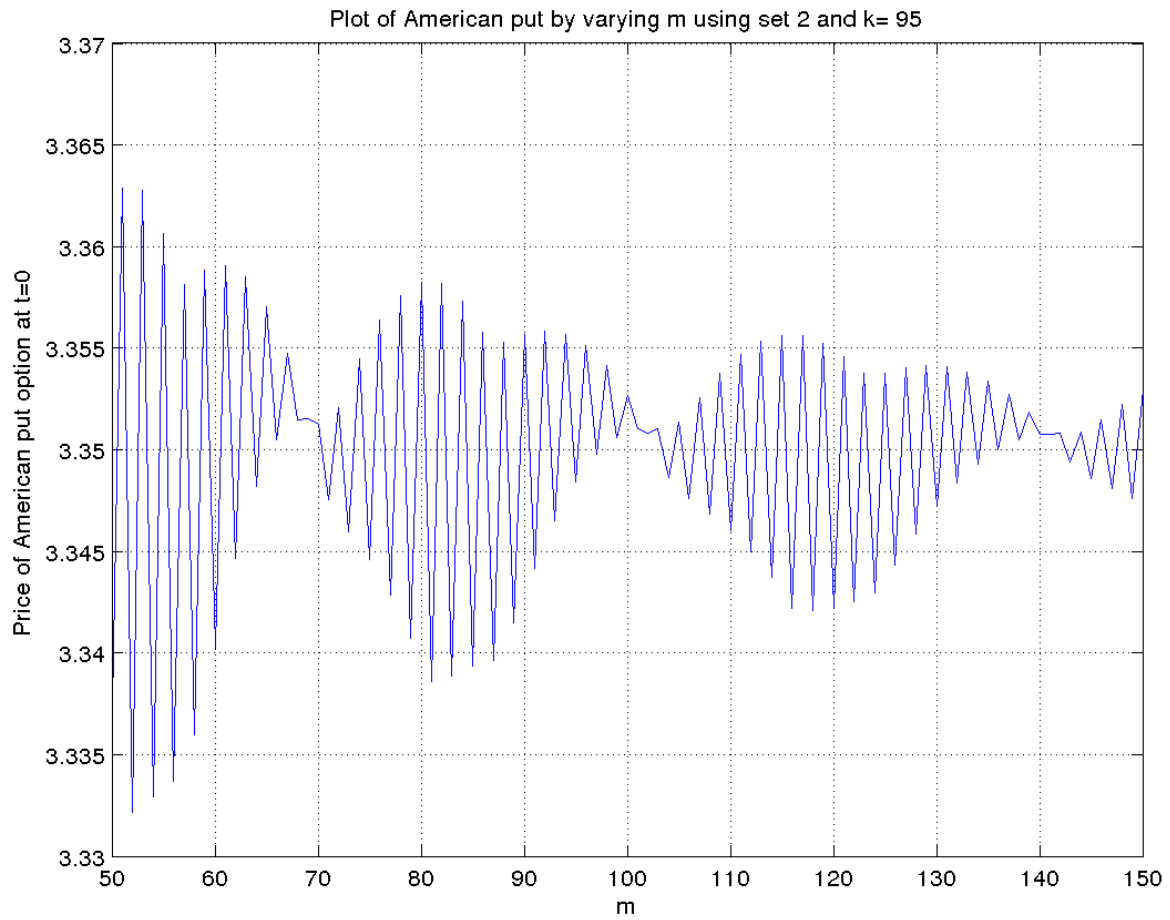


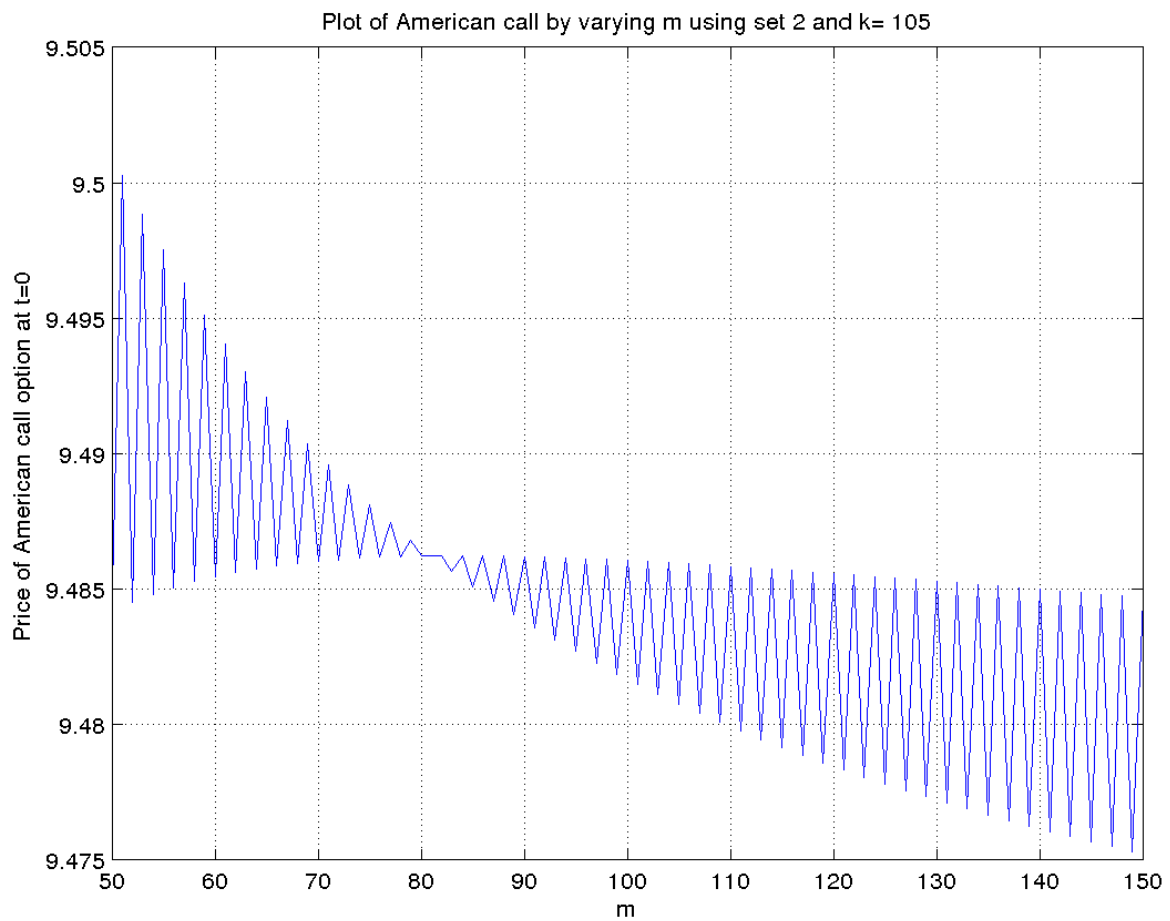
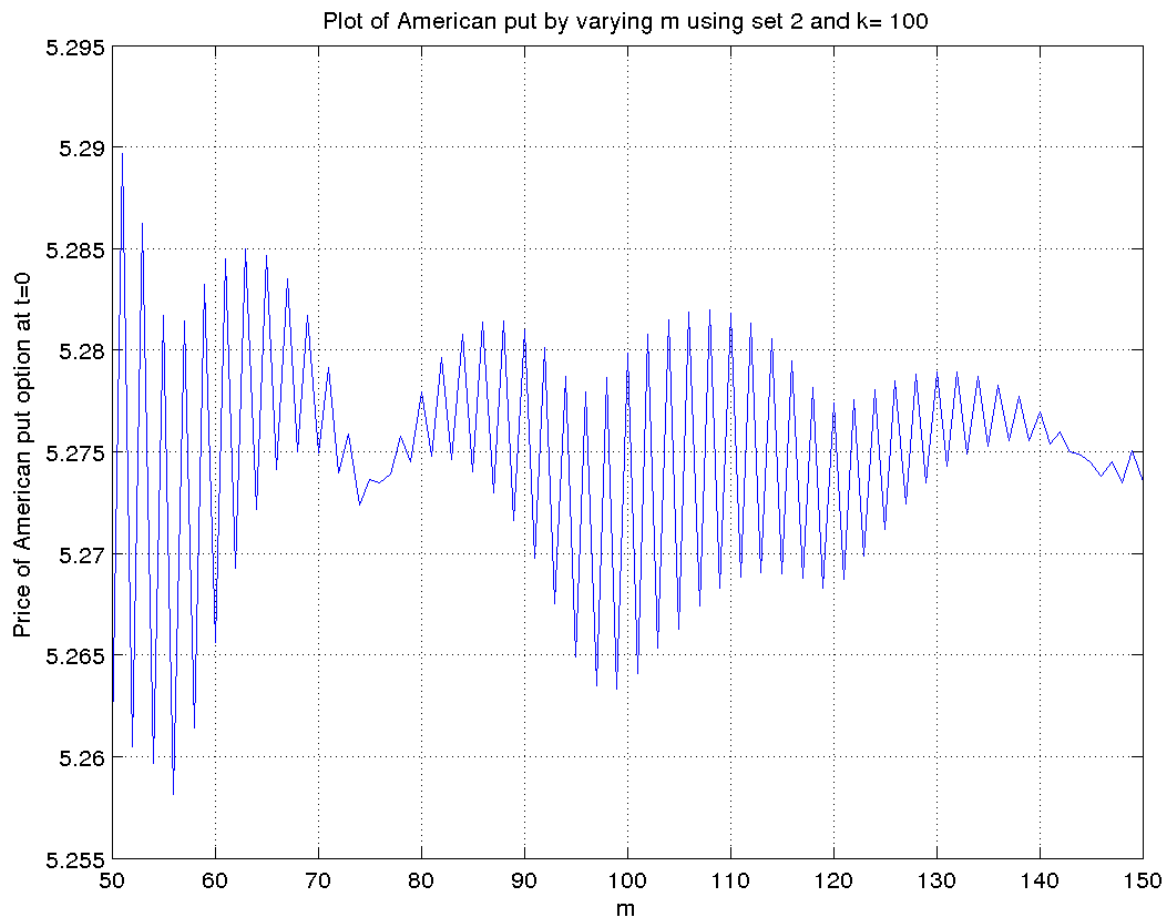


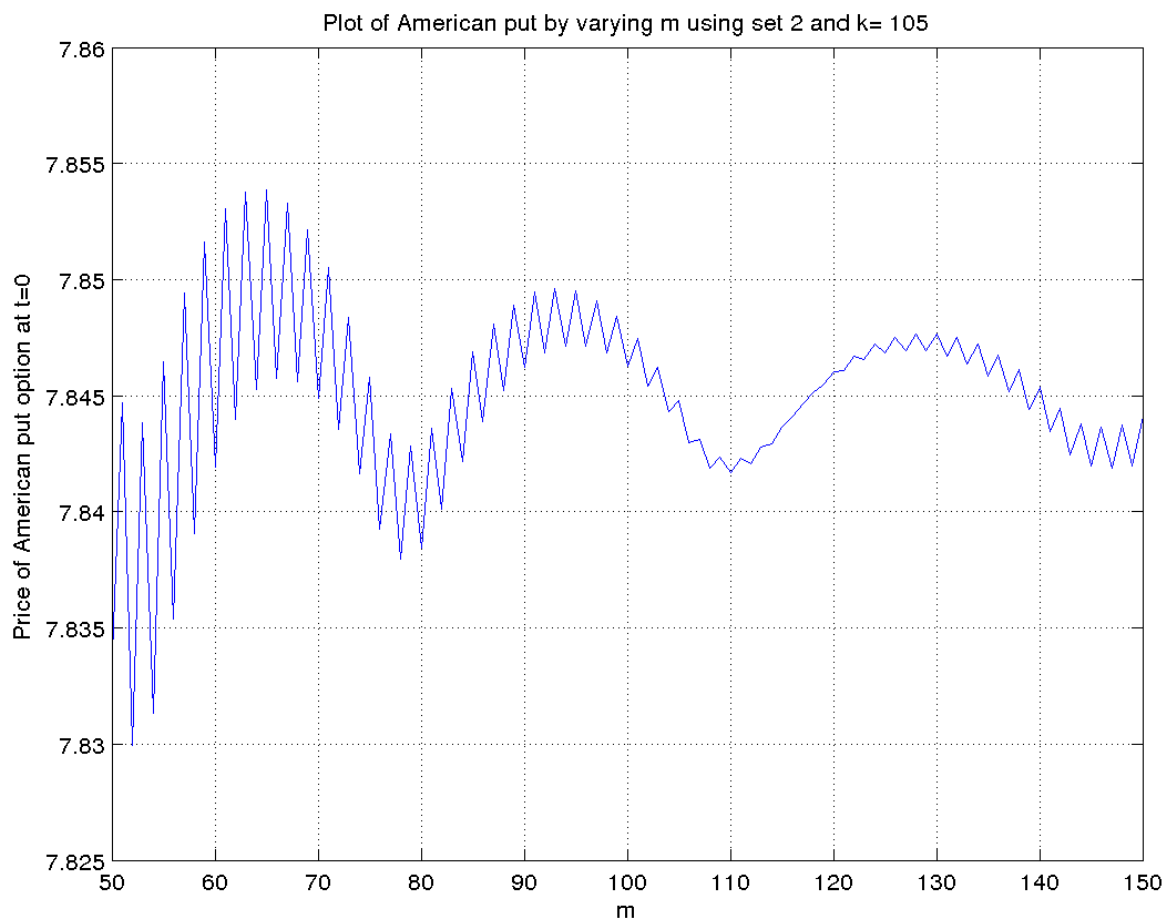








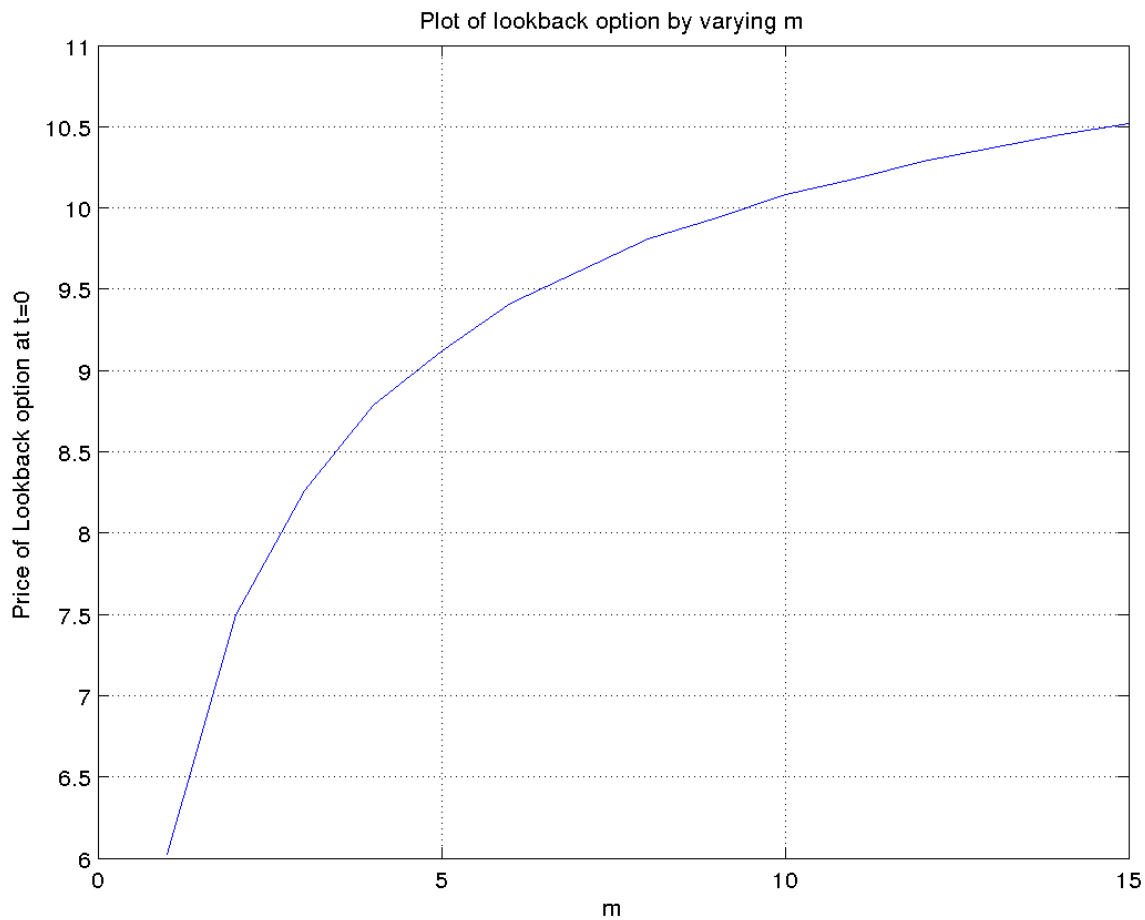




2. Observation:

- a. The value of Lookback option at $m = 5$ is 9.11929899.
The value of Lookback option at $m = 10$ is 10.08058291.
The value of Lookback option at $m = 15$ is 10.51916460.

- b. Values of options at $t=0$ for different value of m :



- c. Value of options at all intermediate time points for $m=5$ is

t	Value of Lookback option
0	9.119298985864701
0.2	9.027951165547773 9.504839866450867
0.4	8.548076183576464 9.799118753547043

	7.147915756774757 12.168664659721799
0.6	7.416771005131031 9.955271272957836 6.201916453882765 13.712862965988544 6.201916453882765 8.324614669633151 7.148418208190115 17.582062714095425
0.8	5.501638813874003 9.571391531700243 4.600479677676443 15.631851880479847 4.600479677676443 8.003613780975460 6.680842999256649 21.188089345345645 4.600479677676443 8.003613780975460 3.846928884415620 13.071380970928784 3.846928884415620 10.680904426029940 10.680904426029961 25.051229457037032
1	0 11.181413117784530 0 19.452691543130413 0 9.349916553291678 6.374517470614265 25.394563475064984 0 9.349916553291678 0 16.266373556657399 0 13.578002496522672

	13.578002496522657
	29.482597122270590
	0
	9.349916553291678
	0
	16.266373556657399
	0
	7.818416029586729
	5.330382286201811
	21.234976911949744
	0
	7.818416029586729
	2.901350497139646
	18.805945122887579
	2.901350497139674
	18.805945122887593
	18.805945122887593
	32.105394038530477