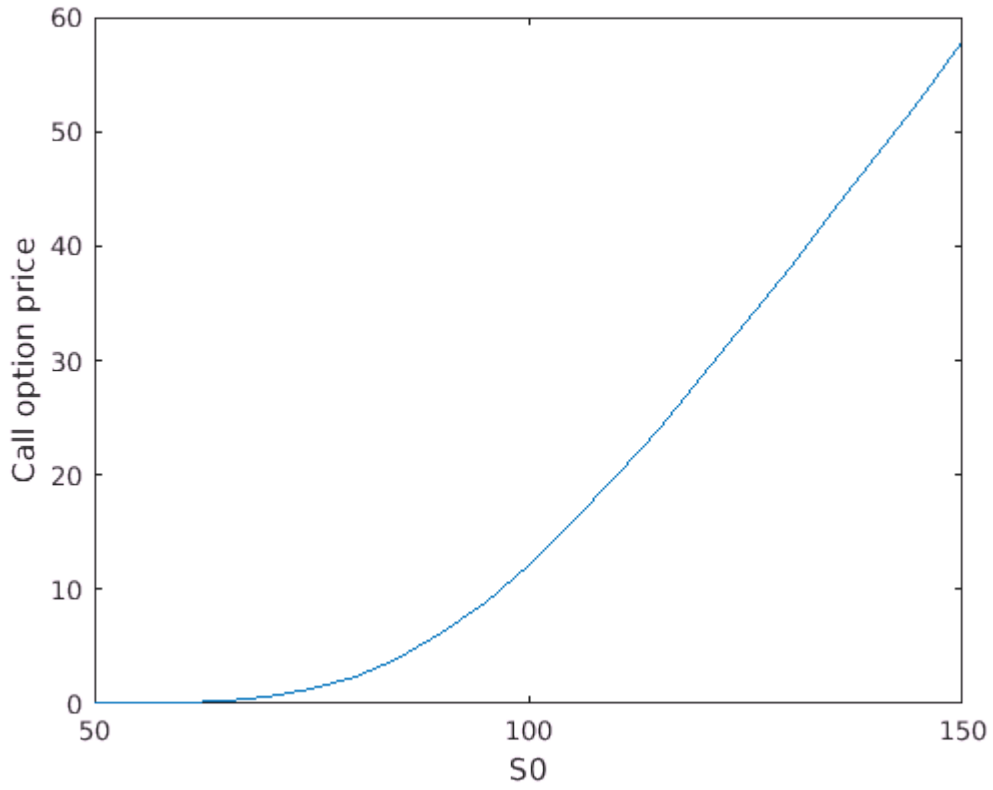
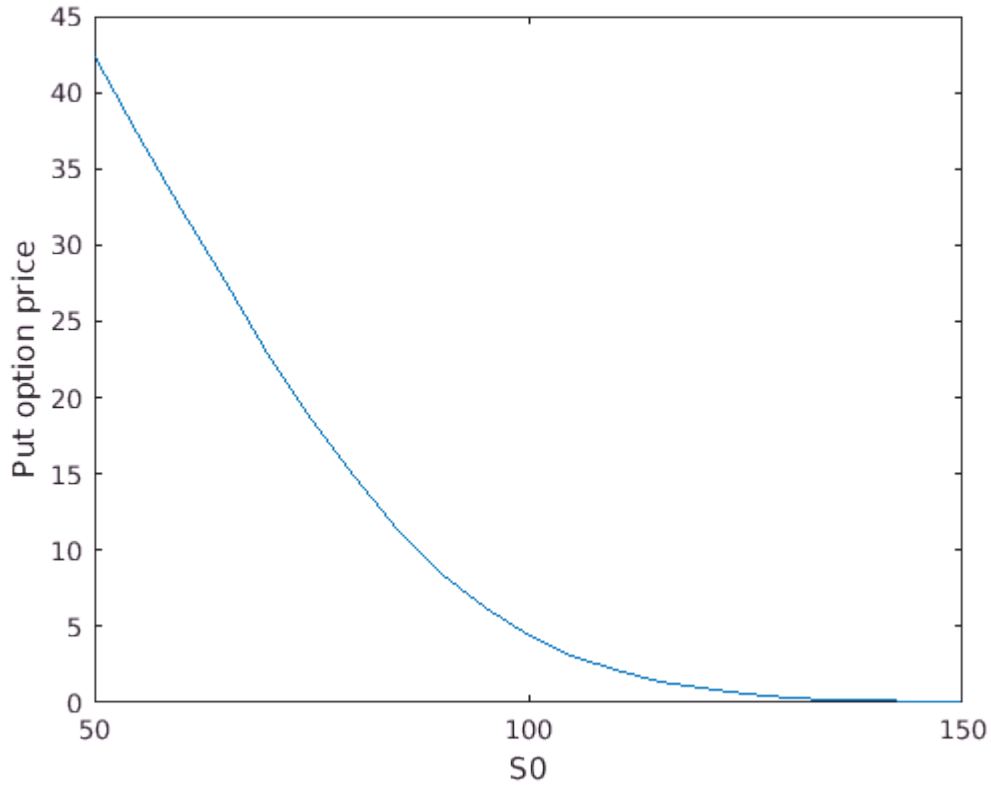
Financial Engineering Lab 2

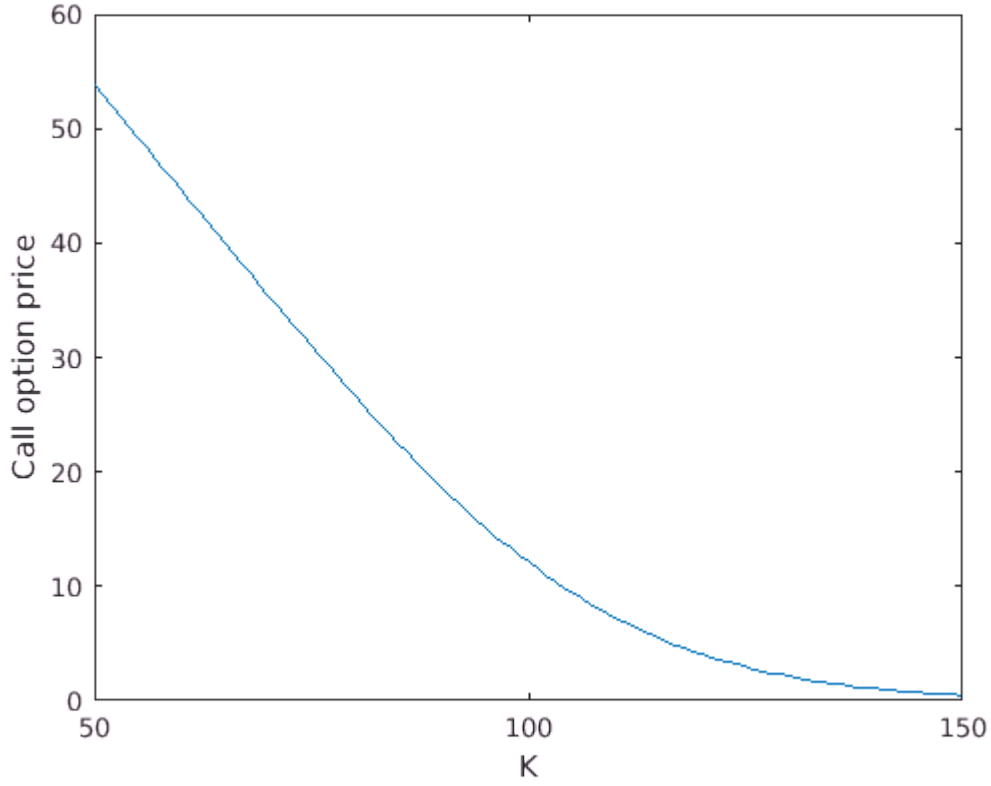
Q1

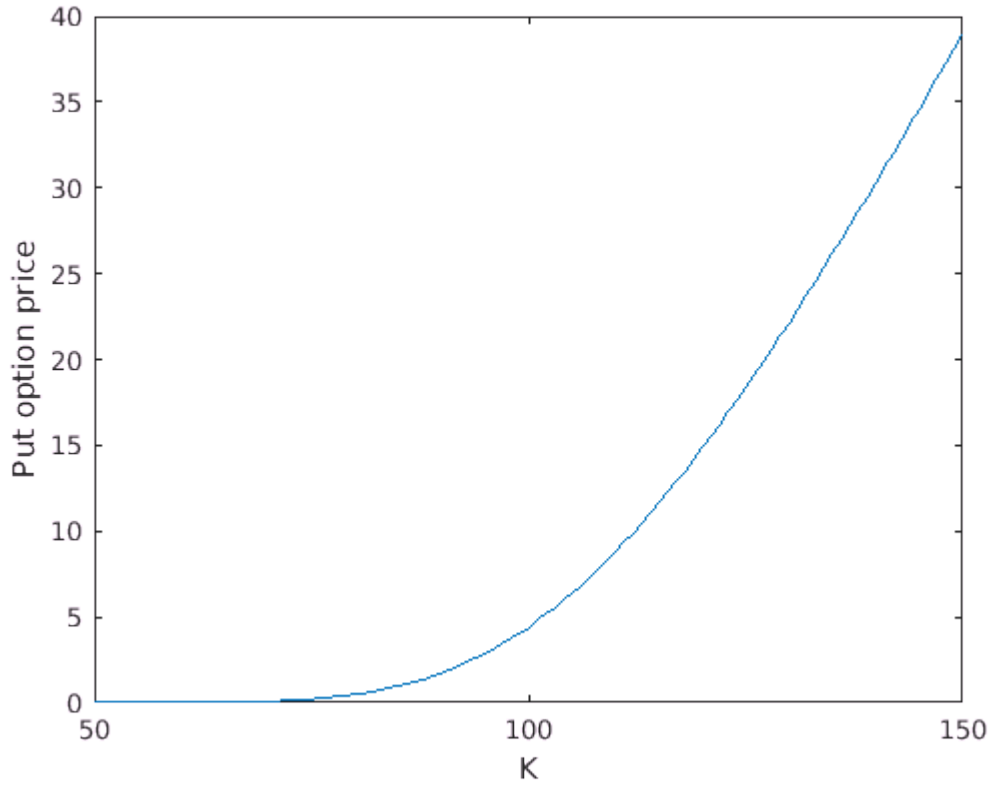
```
 SET A
The call price for the given Values is 12.085380
The put price for the given Values is 4.397015

 Varying S0
```



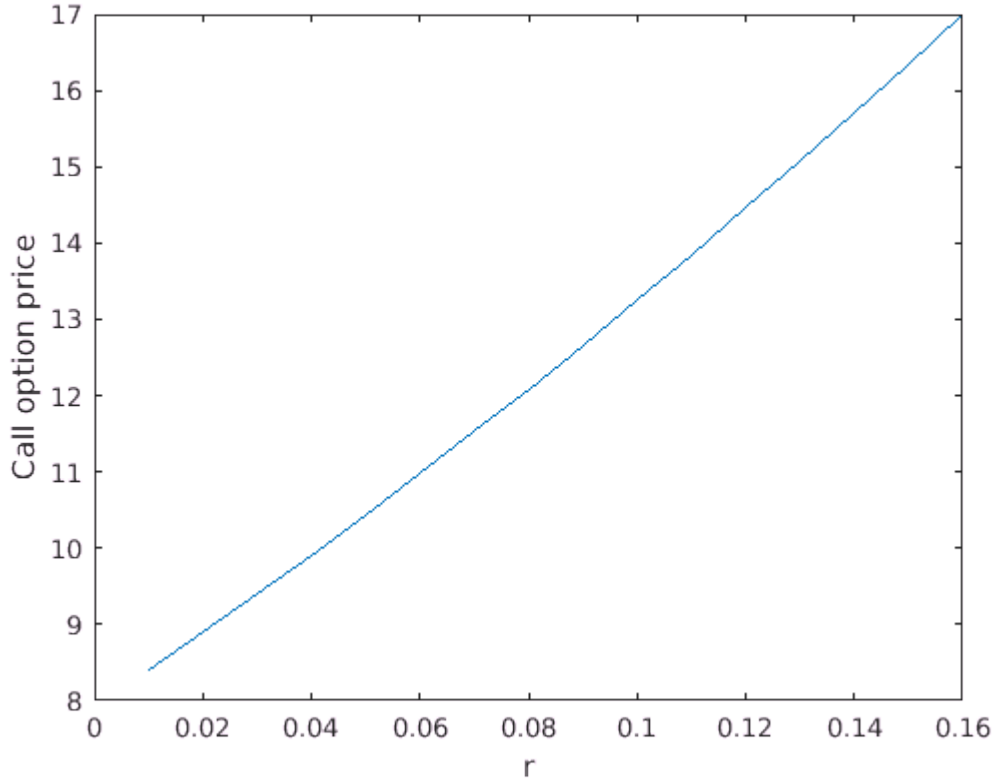

Put option price
S0
45
40
35
30
25
20
15
10
5
0
50
100
150

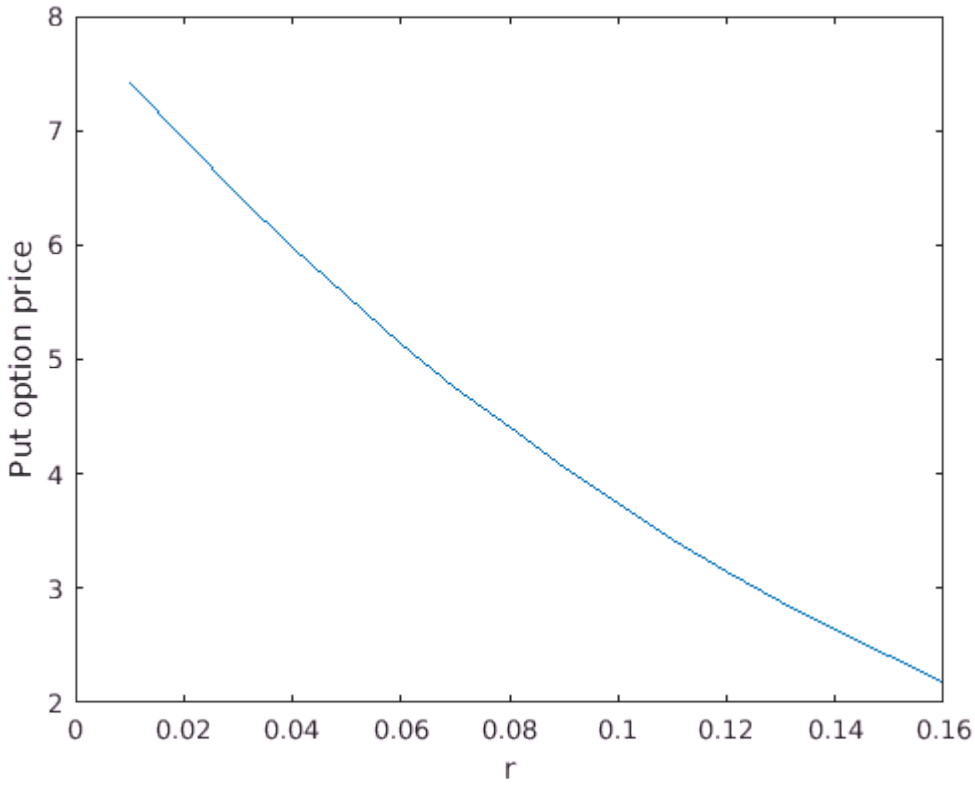
Varying K


Call option price
K
60
50
40
30
20
10
0
50
100
150

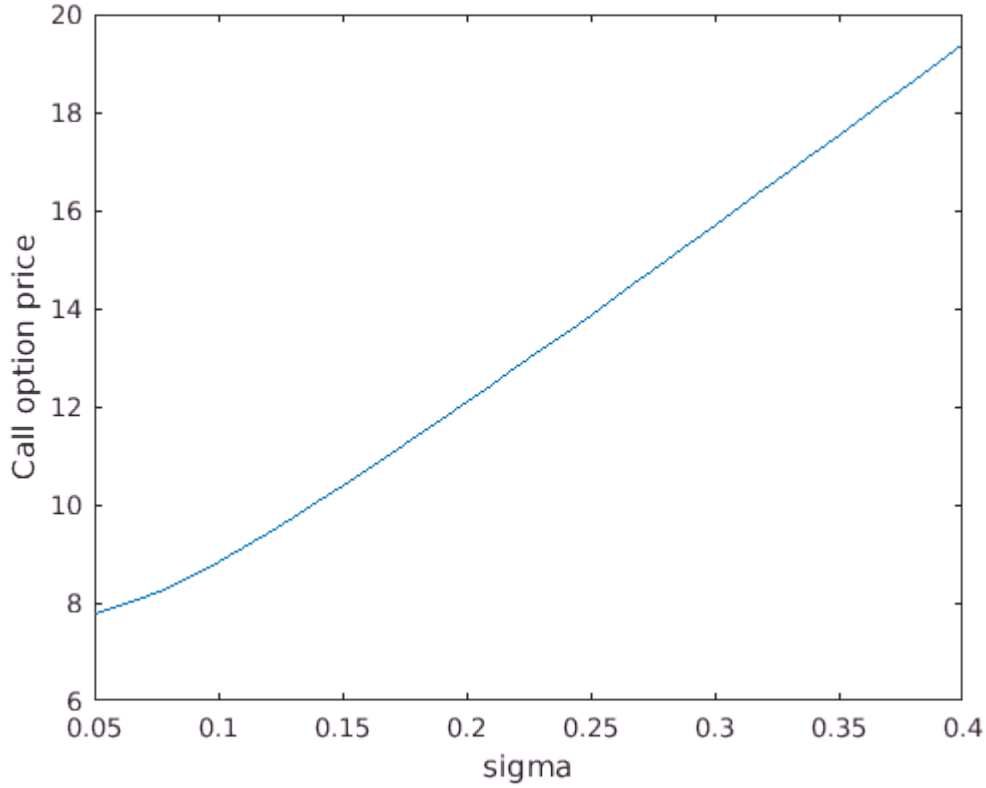

Put option price
K
0
5
10
15
20
25
30
35
40
50
100
150

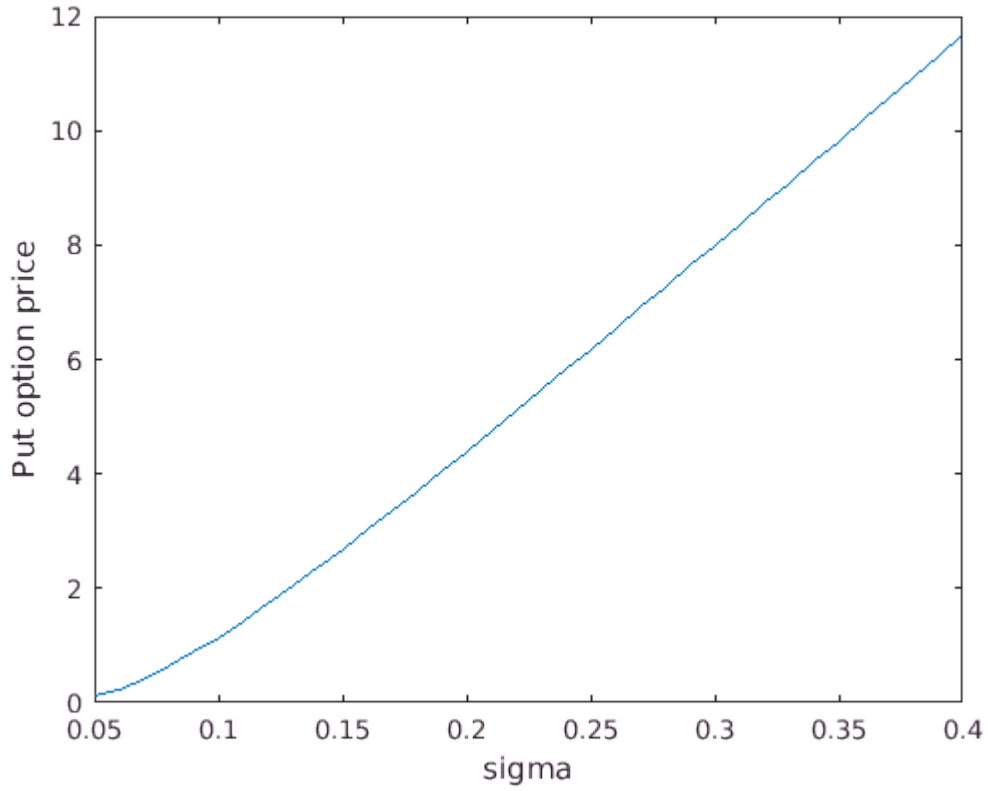
Varying r


Call option price
r
8
9
10
11
12
13
14
15
16
17
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16

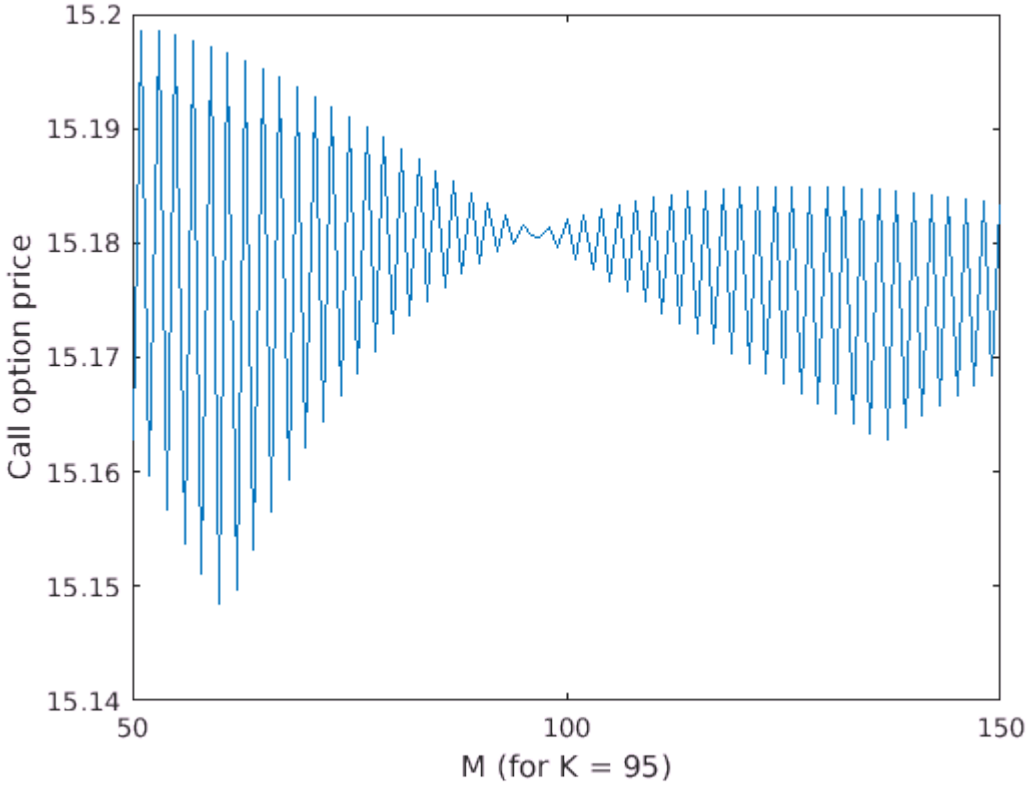


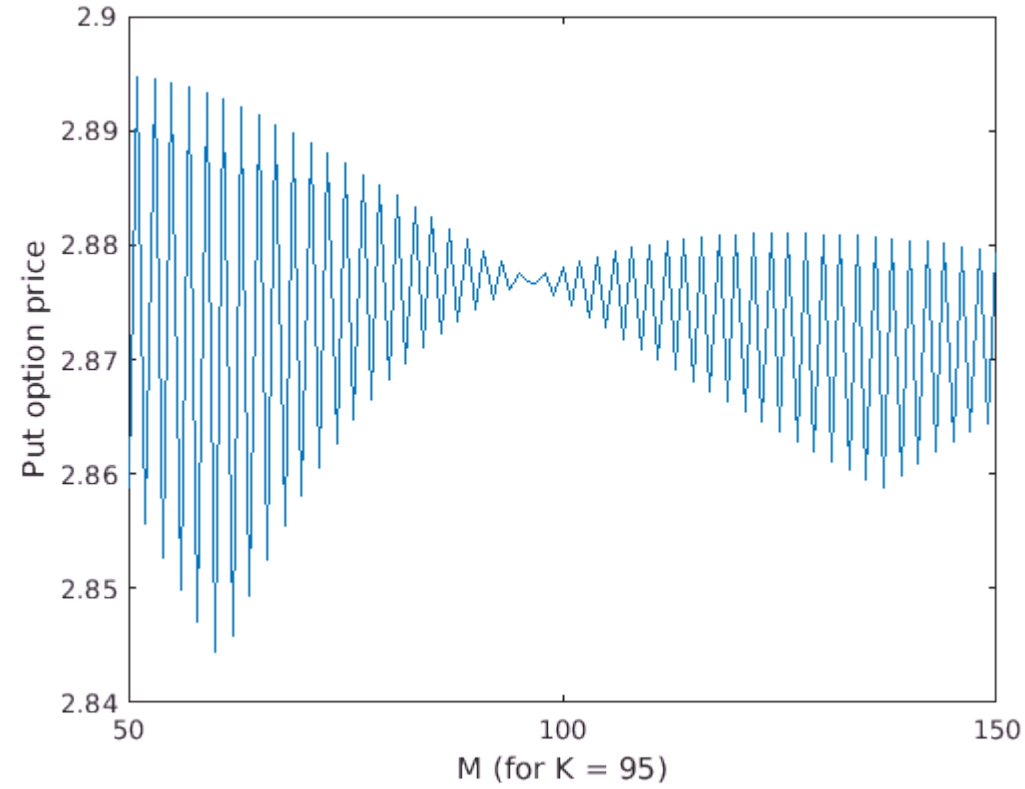
Varying sigma

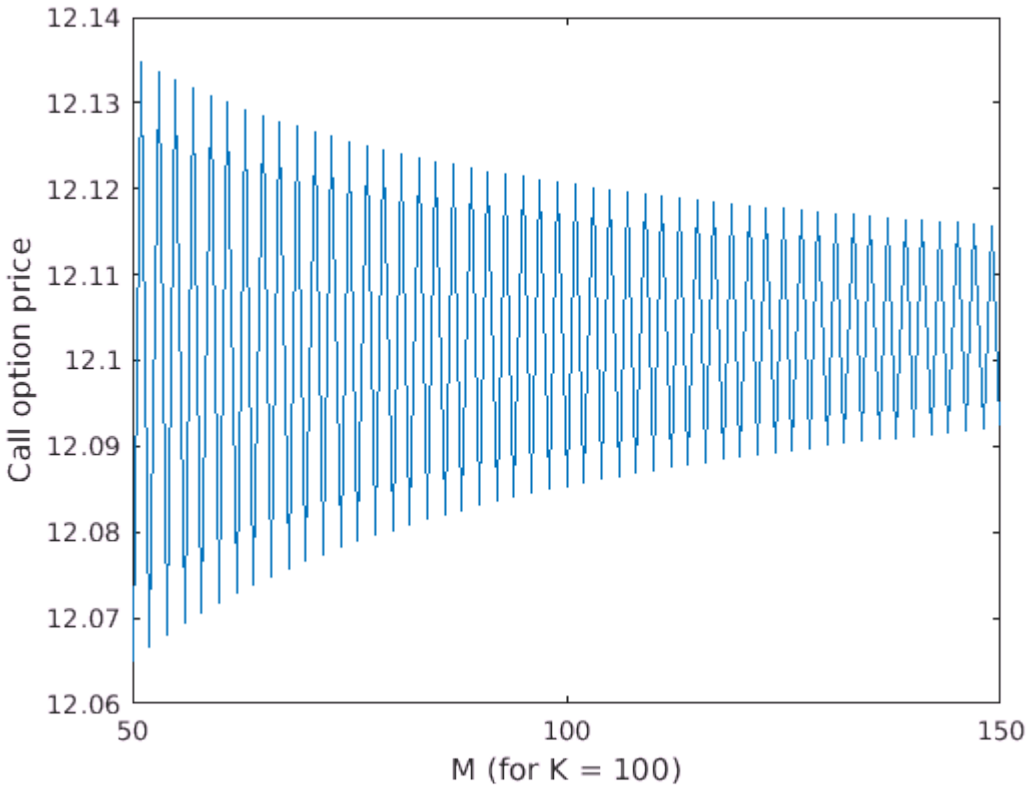


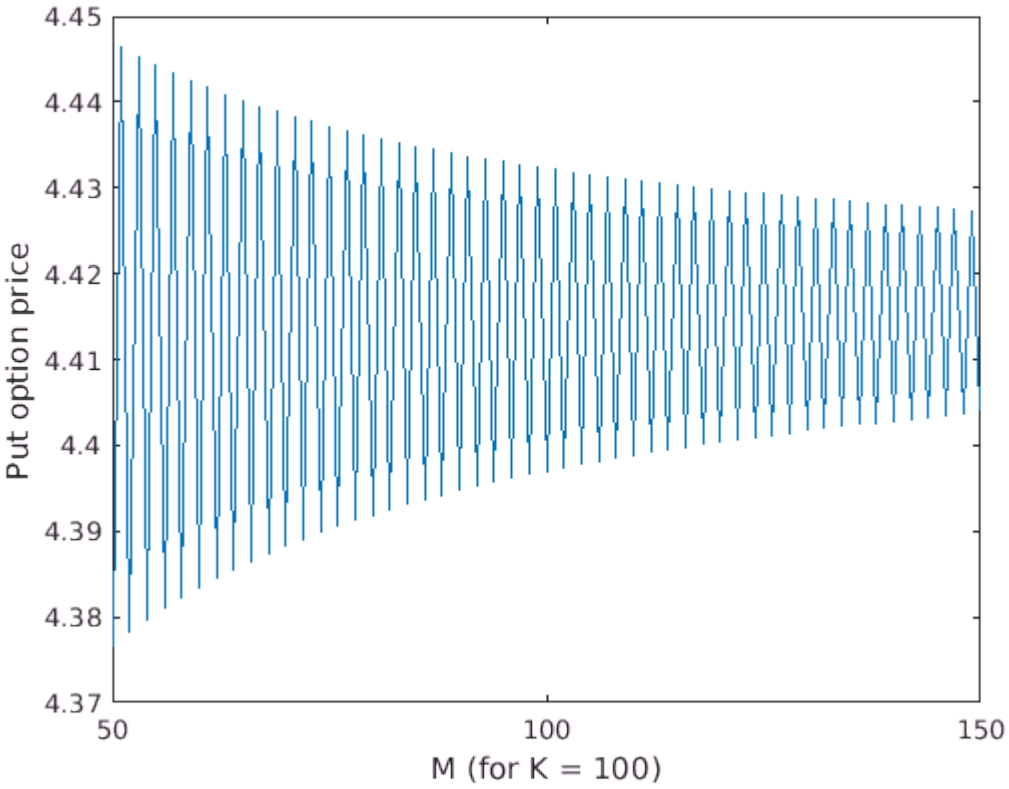


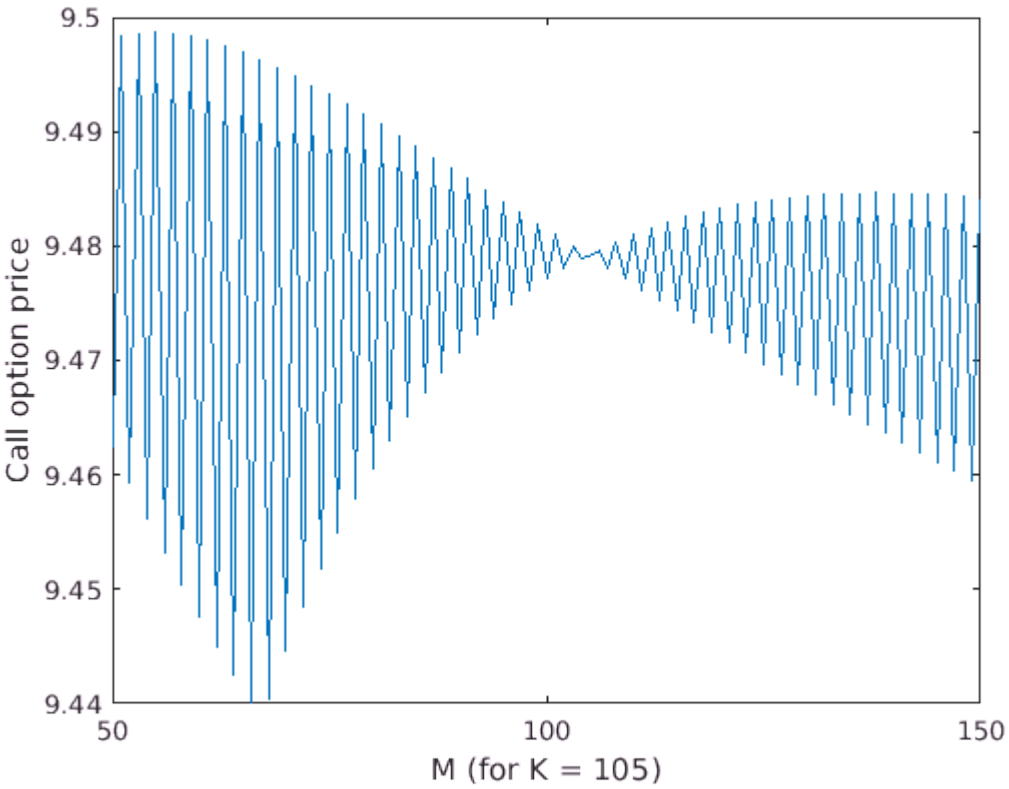
Varying M (for k=95,100,105)

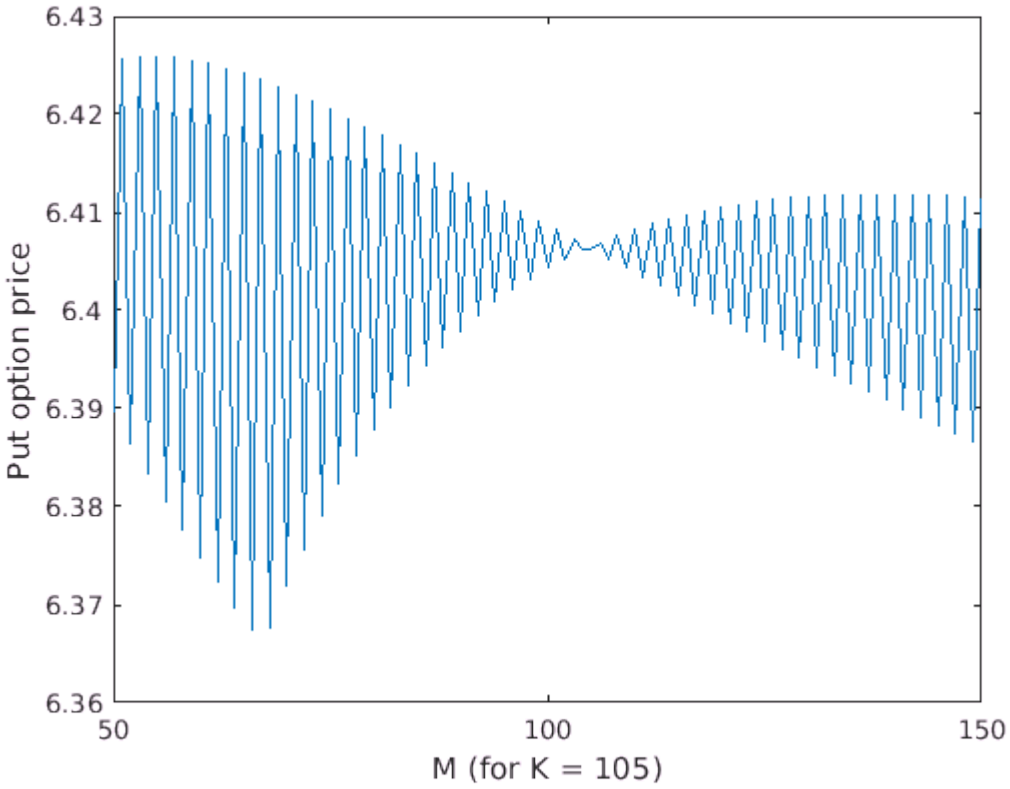



2.9
2.89
2.88
2.87
2.86
2.85
2.84
Put option price
50
100
150
M (for K = 95)


12.14
12.13
12.12
12.11
12.1
12.09
12.08
12.07
12.06
Call option price
50
100
150
M (for K = 100)


4.45
4.44
4.43
4.42
4.41
4.4
4.39
4.38
4.37
Put option price
50
100
150
M (for K = 100)

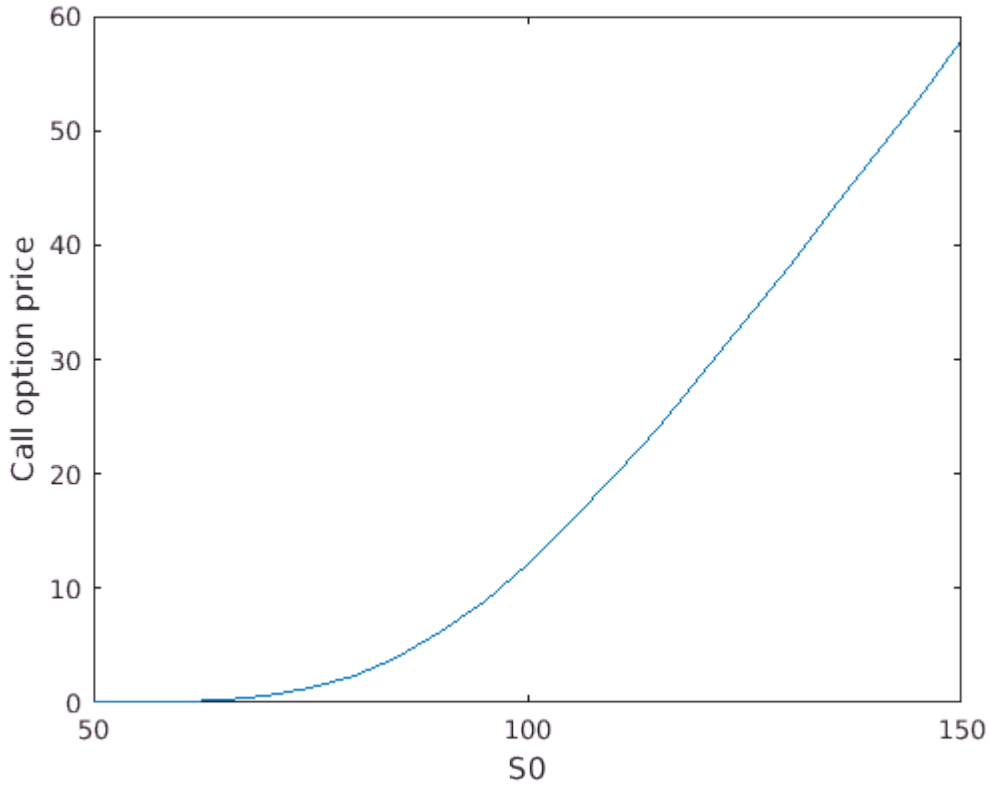

9.5
9.49
9.48
9.47
9.46
9.45
9.44
Call option price
50
100
150
M (for K = 105)

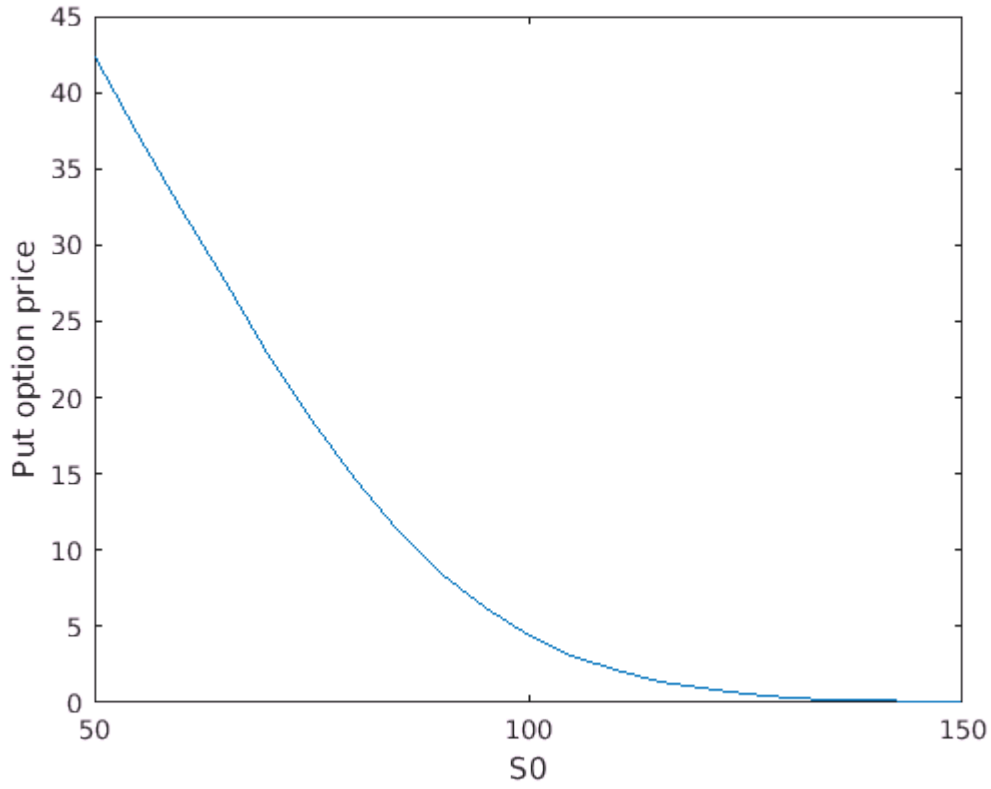


SET B

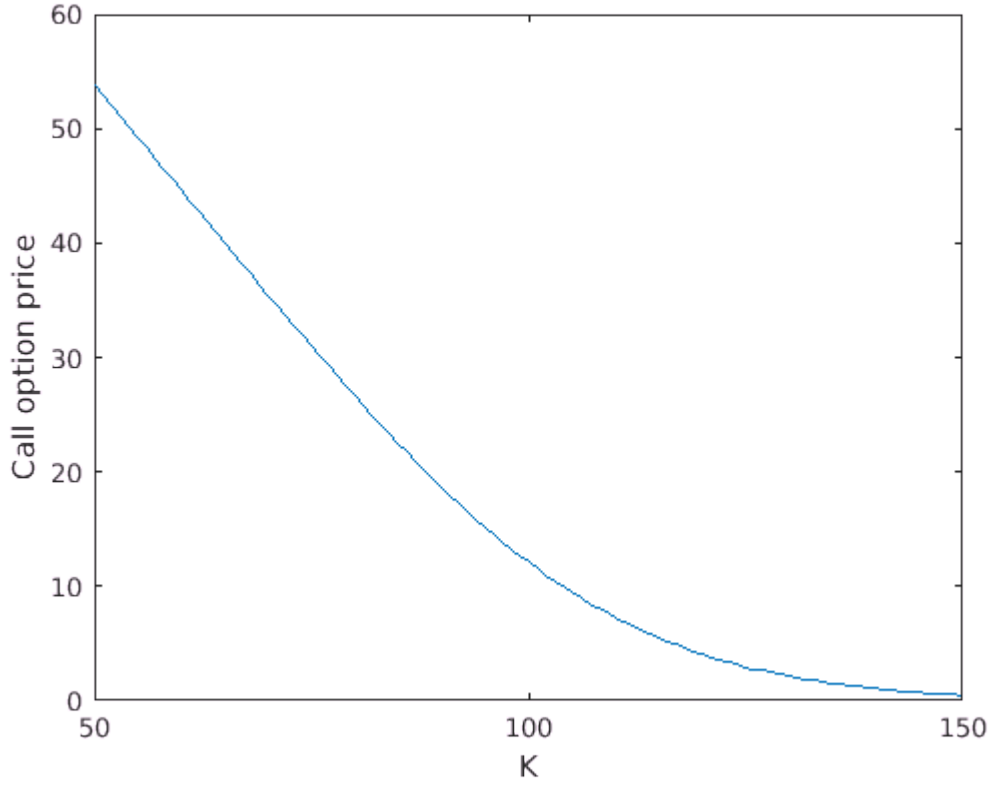
```
The call price for the given Values is 12.123047
The put price for the given Values is 4.434682
```

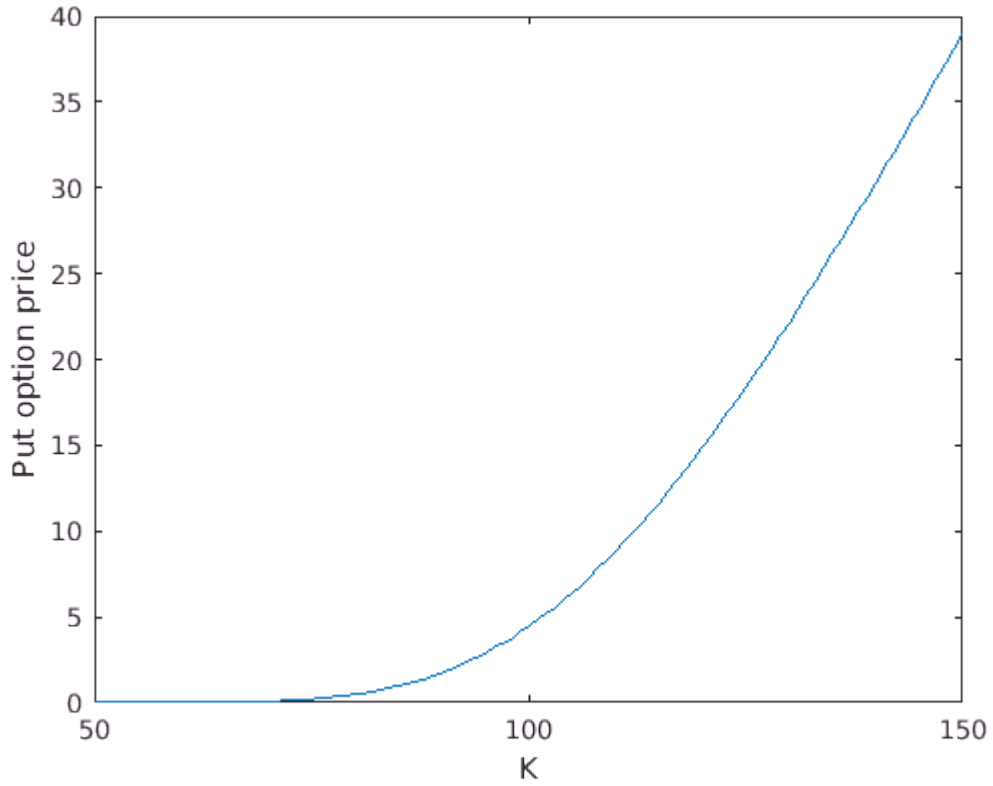
Varying S0



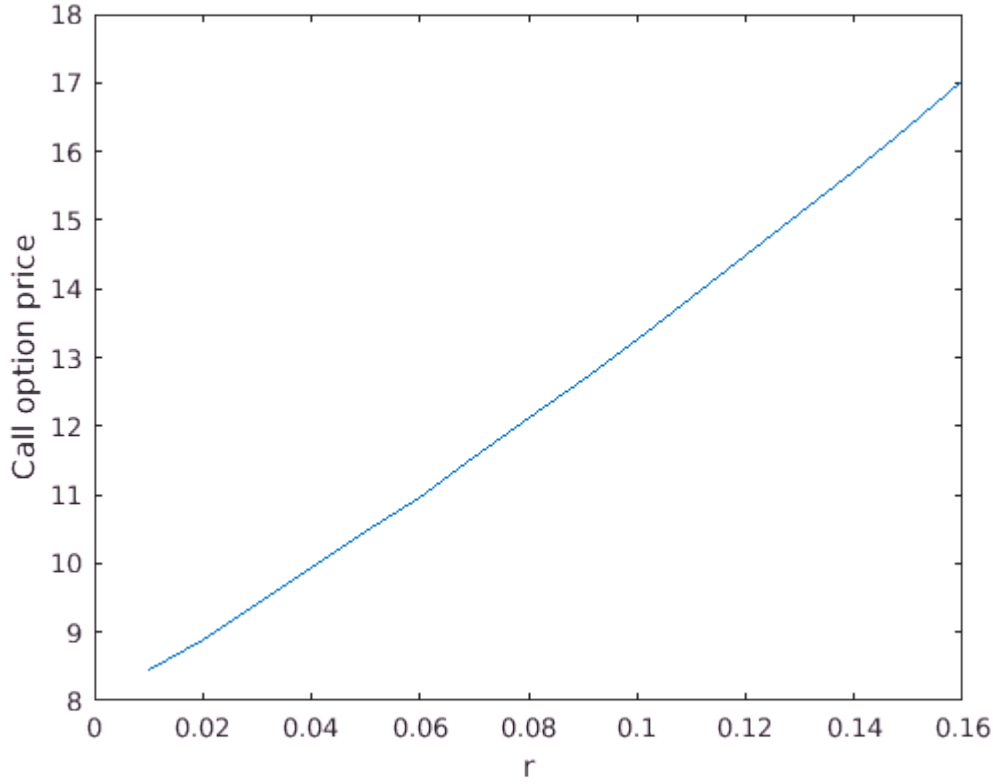

Put option price
S0
45
40
35
30
25
20
15
10
5
0
50
100
150

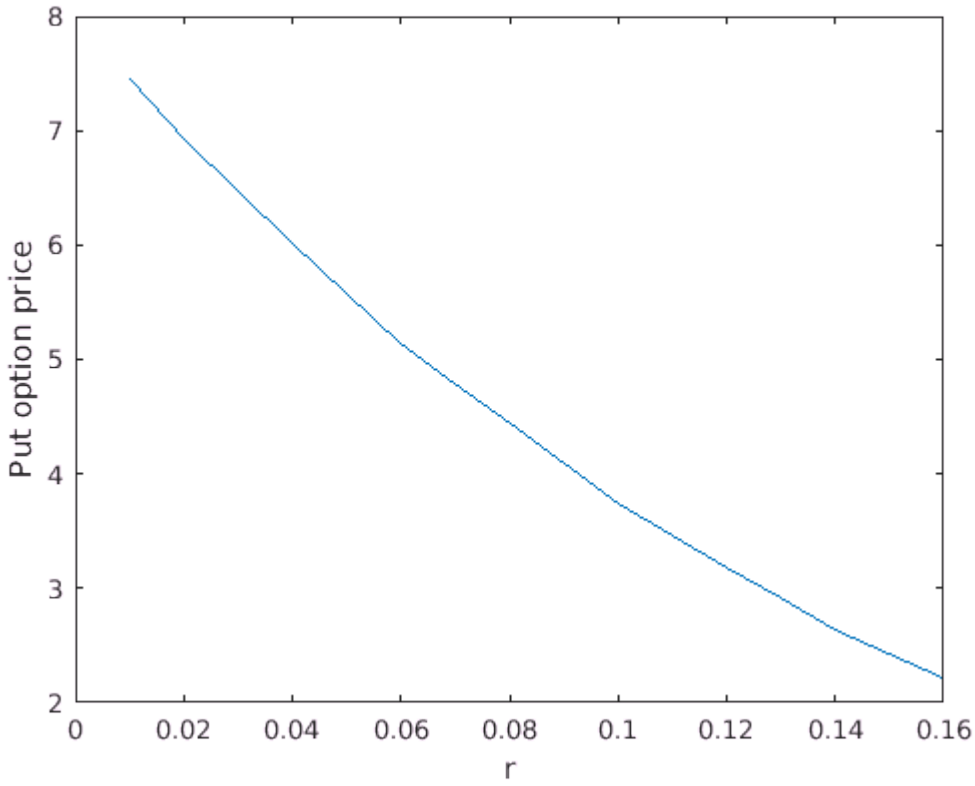
Varying K


Call option price
K
60
50
40
30
20
10
0
50
100
150

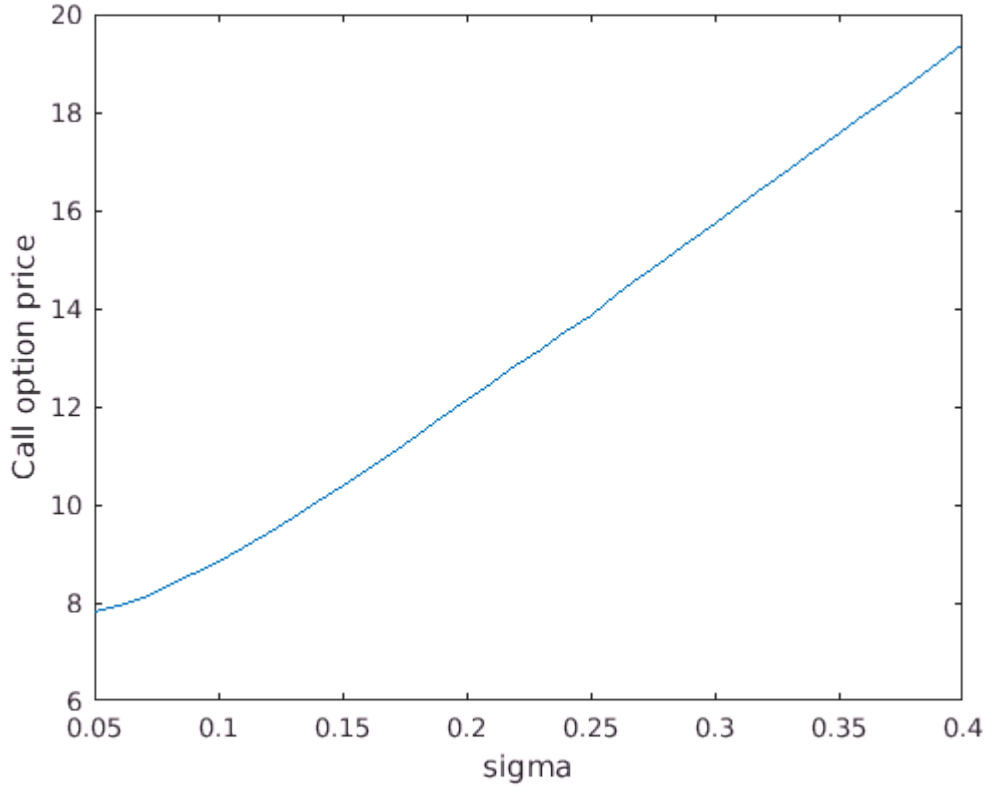

Put option price
K
0
5
10
15
20
25
30
35
40
50
100
150

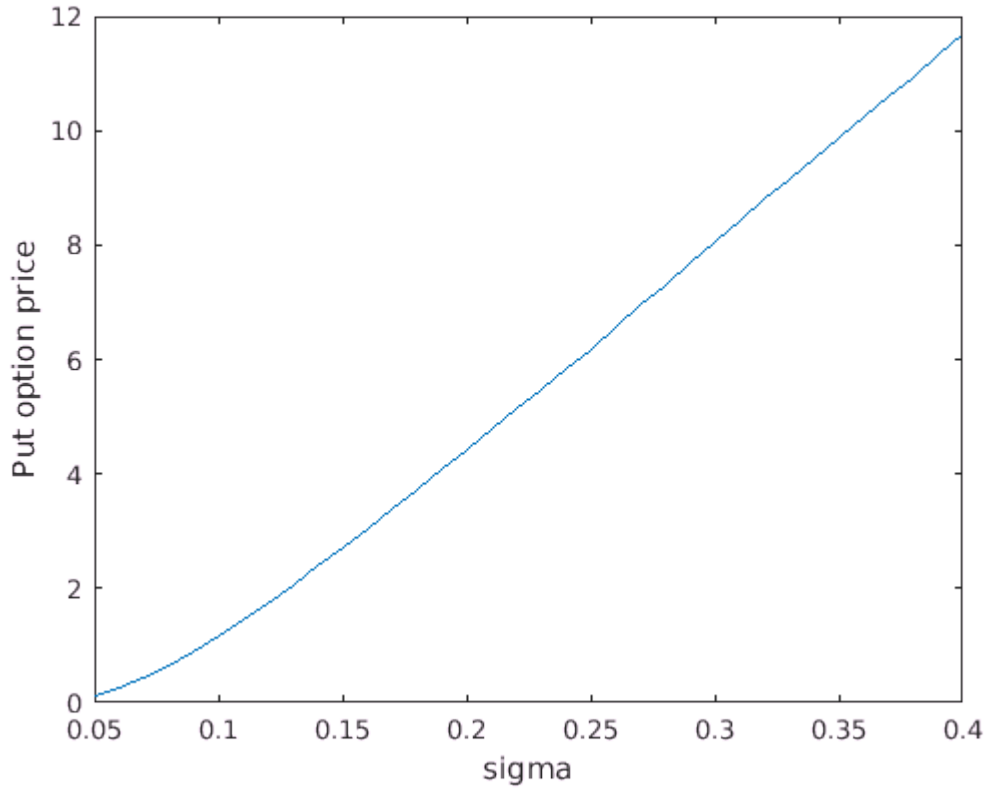
Varying r


Call option price
r
8
9
10
11
12
13
14
15
16
17
18
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16

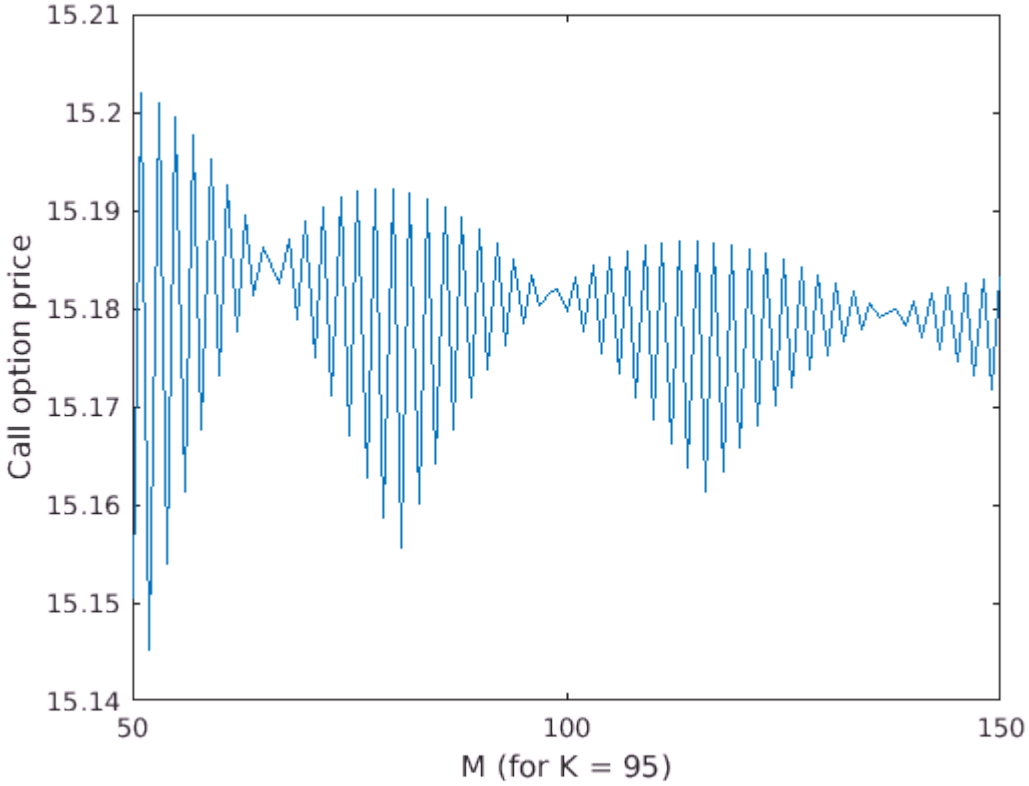


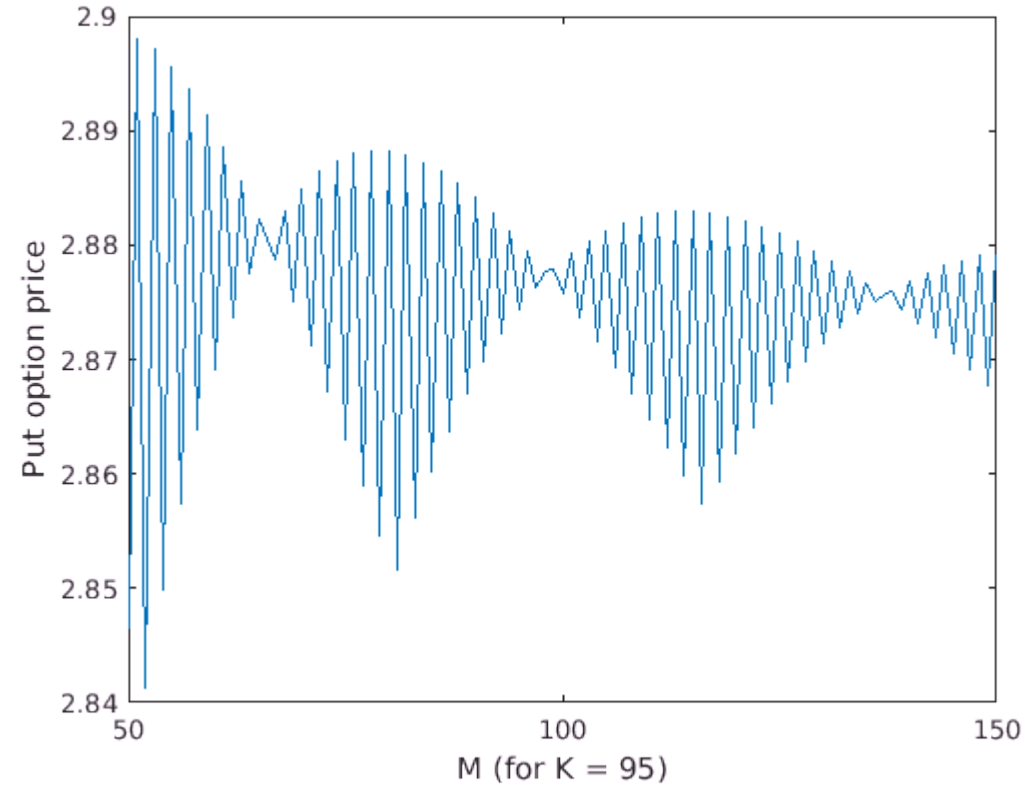
Varying sigma

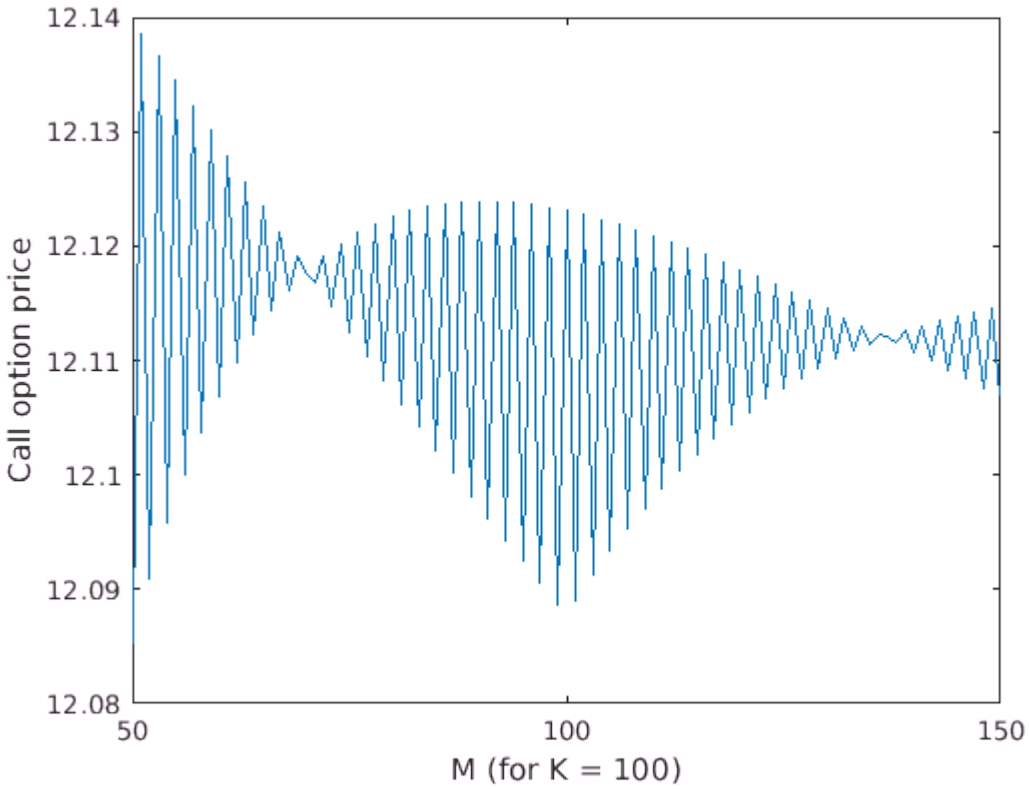


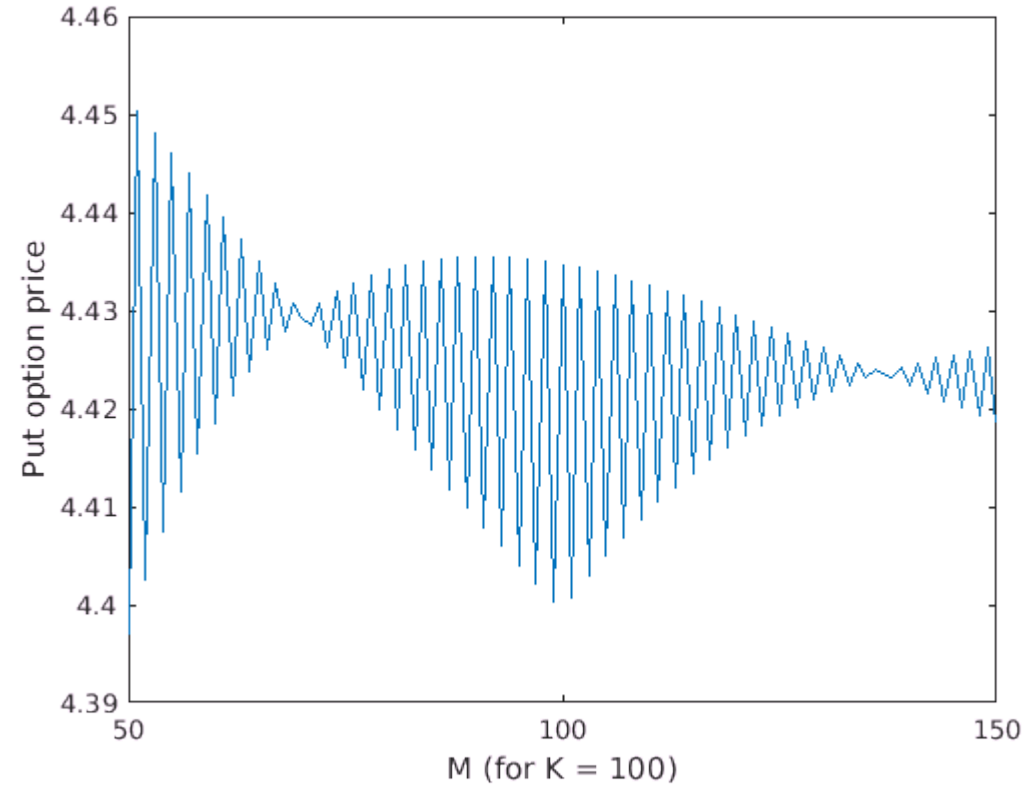


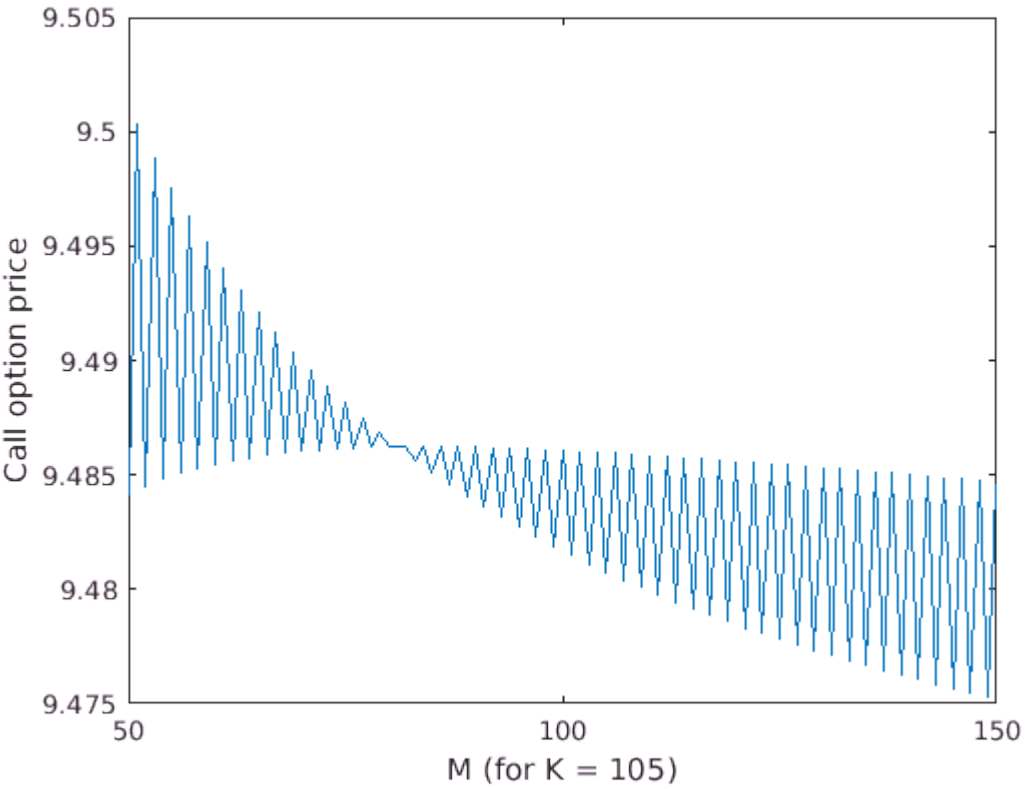
Varying M (for k=95,100,105)

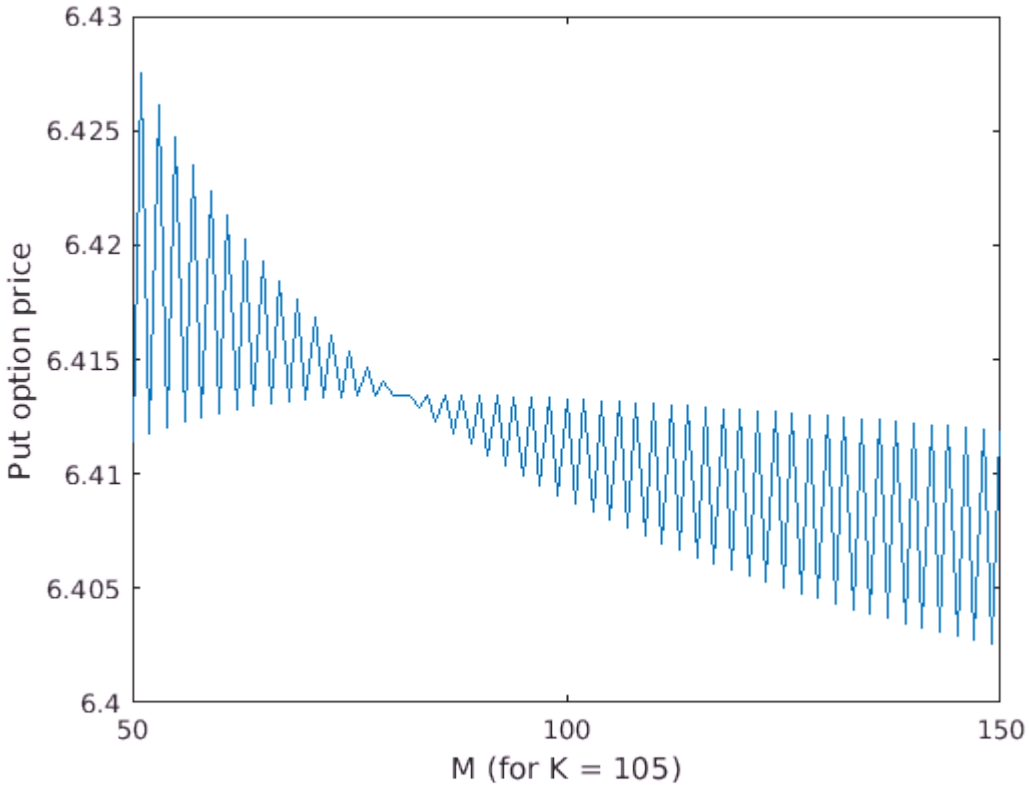



2.9
2.89
2.88
2.87
2.86
2.85
2.84
Put option price
50
100
150
M (for K = 95)


12.14
12.13
12.12
12.11
12.1
12.09
12.08
Call option price
50
100
150
M (for K = 100)


4.46
4.45
4.44
4.43
4.42
4.41
4.4
4.39
Put option price
50
100
150
M (for K = 100)


9.505
9.5
9.495
9.49
9.485
9.48
9.475
Call option price
50
100
150
M (for K = 105)

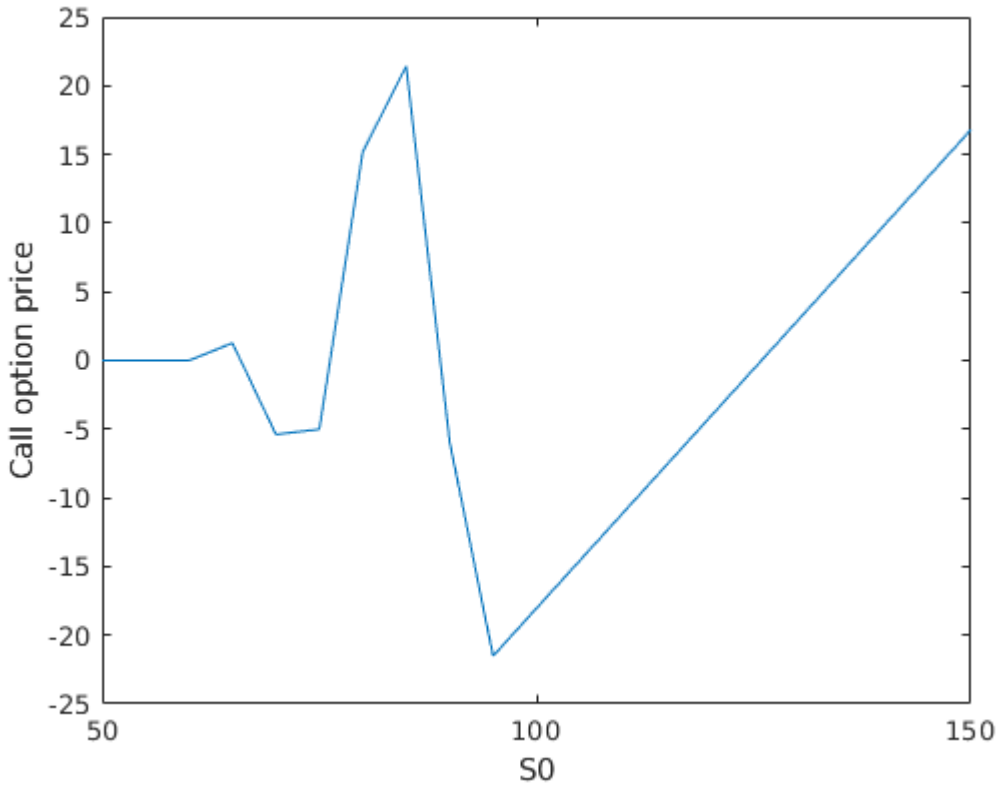

6.43
6.425
6.42
6.415
6.41
6.405
6.4
Put option price
50
100
150
M (for K = 105)

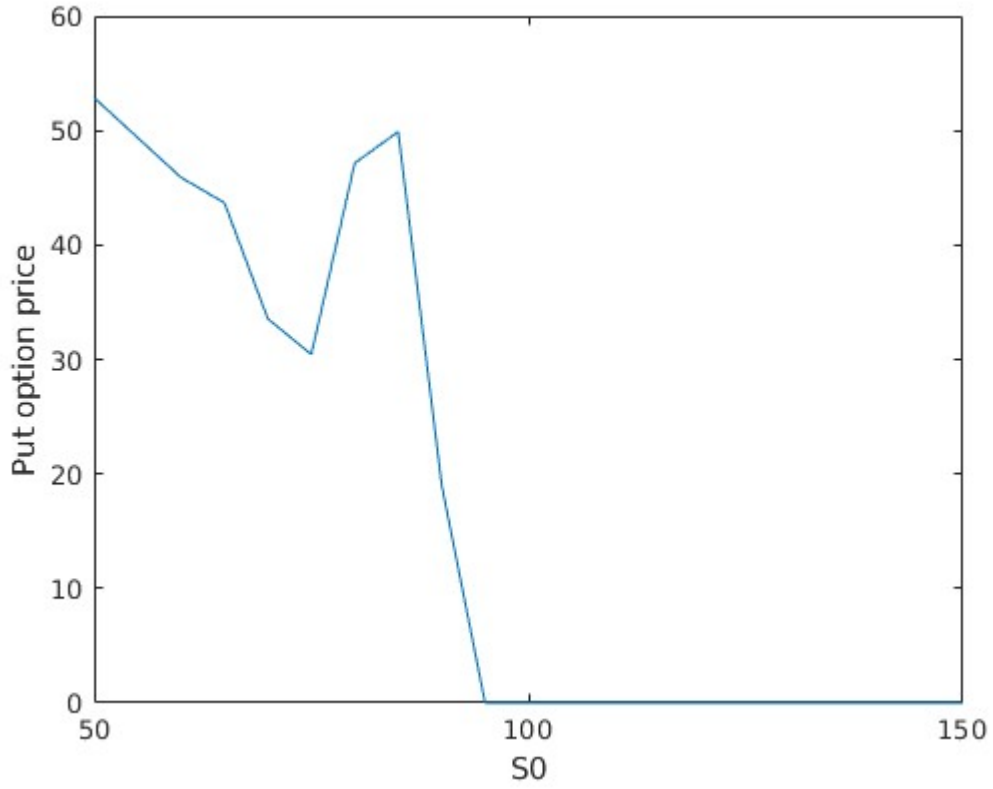
Q2

Using the path dependent Asian pricing option (part A)

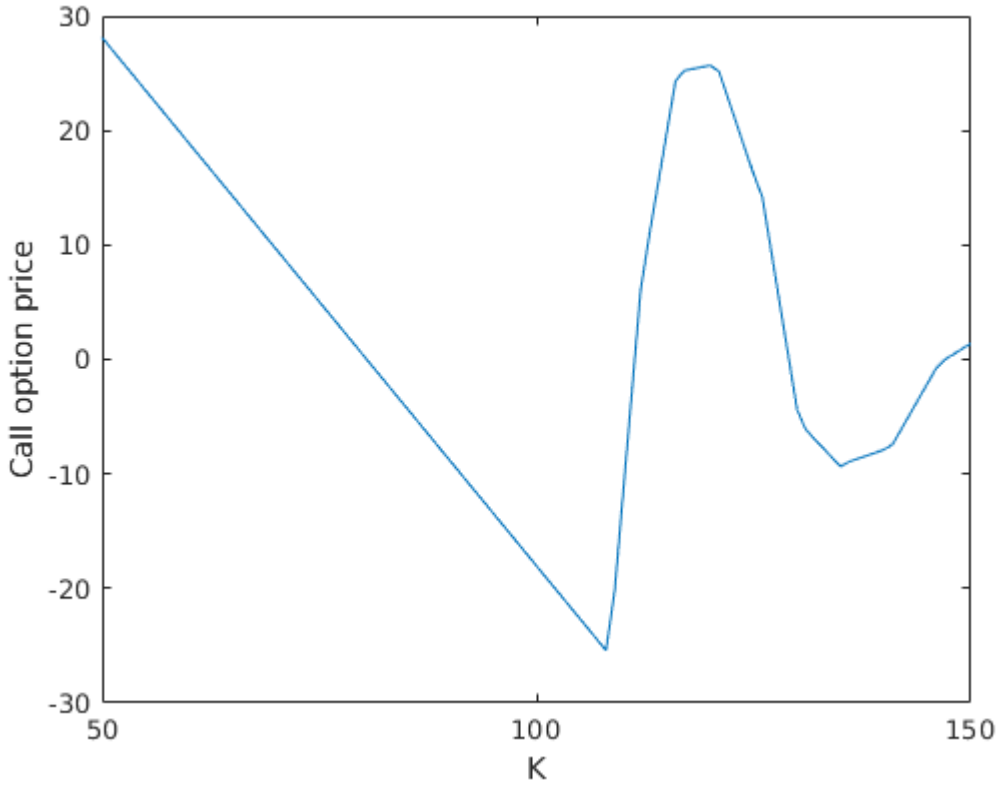
```
The call price for the given Values is -18.034162
The put price for the given Values is 0.000000
```

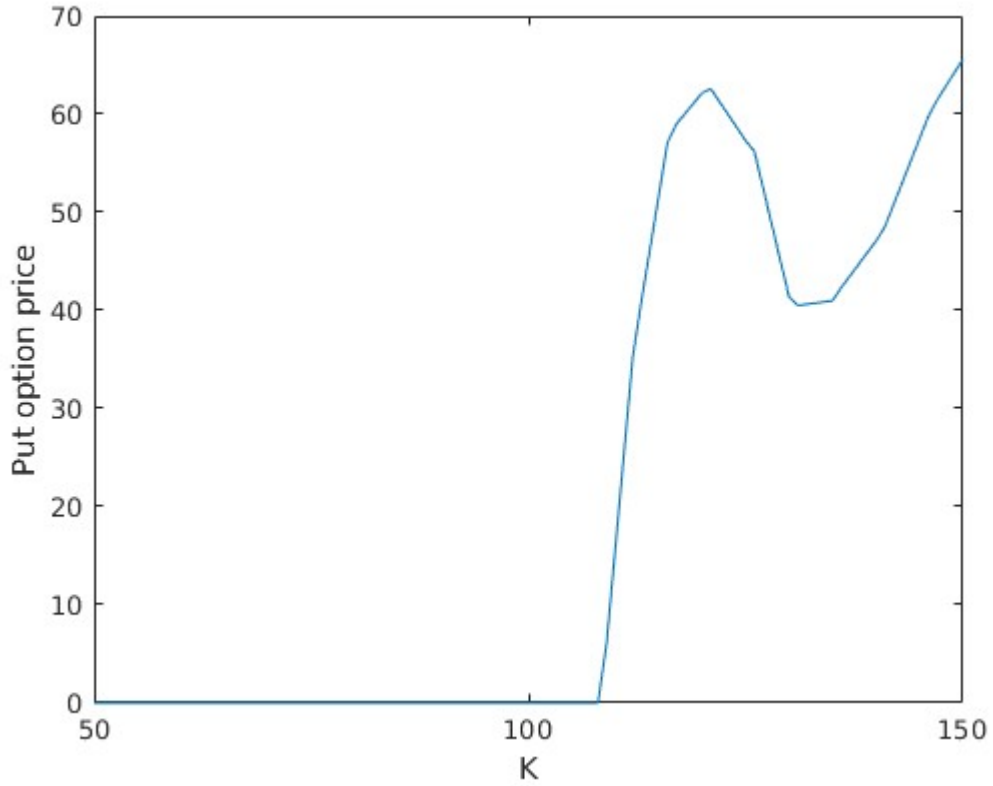
Varying S0



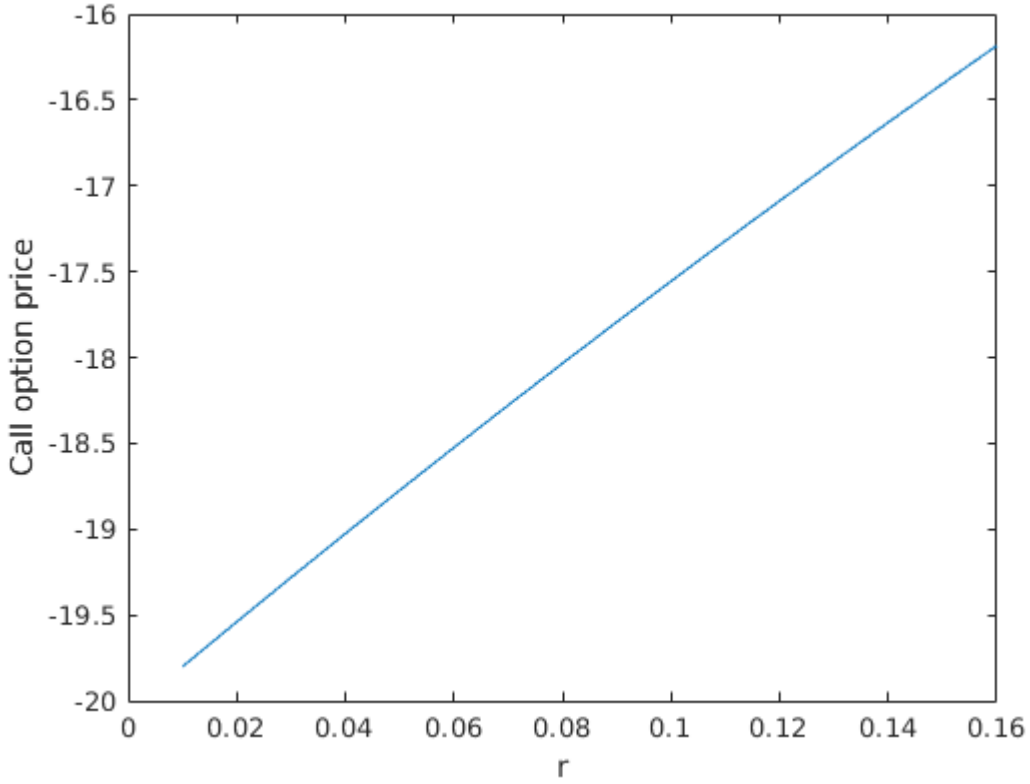

Put option price
S0
60
50
40
30
20
10
0
50
100
150

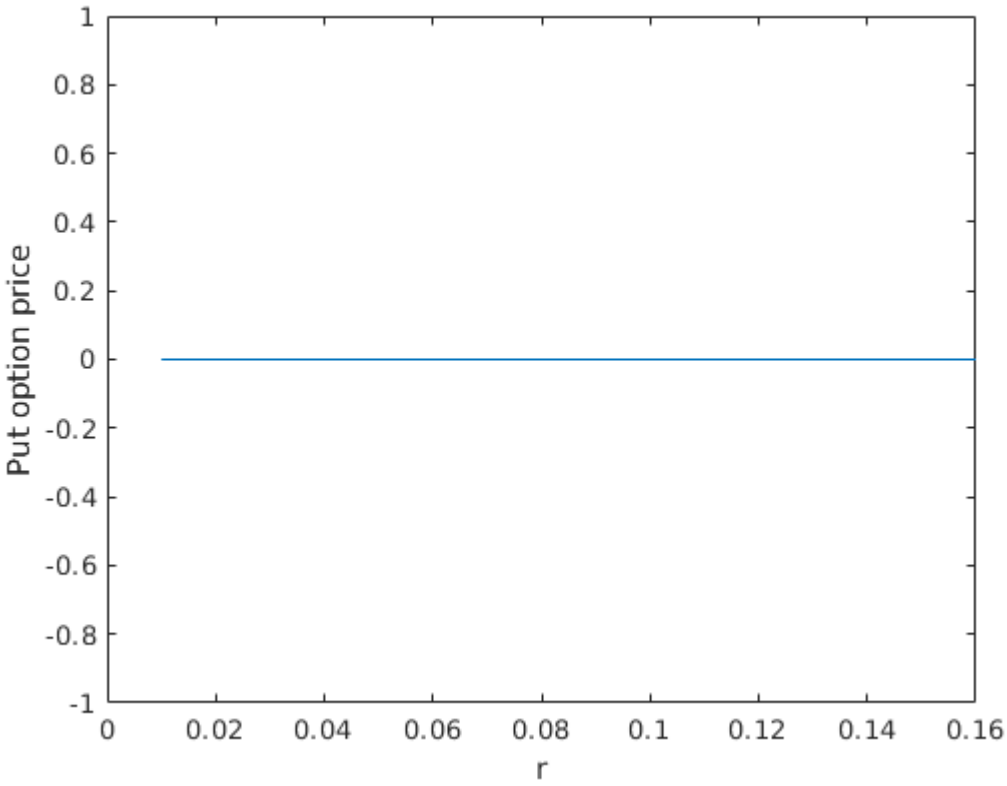
Varying K


Call option price
K
30
20
10
0
-10
-20
-30
50
100
150

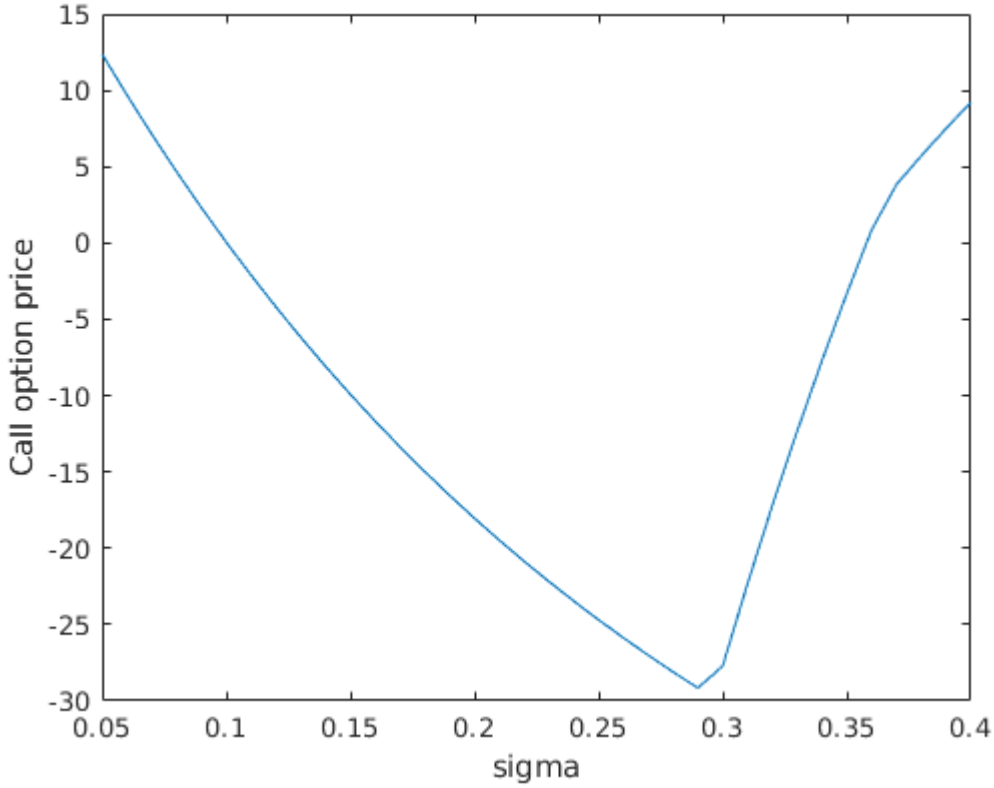

70
60
50
40
30
20
10
0
Put option price
50
100
150
K

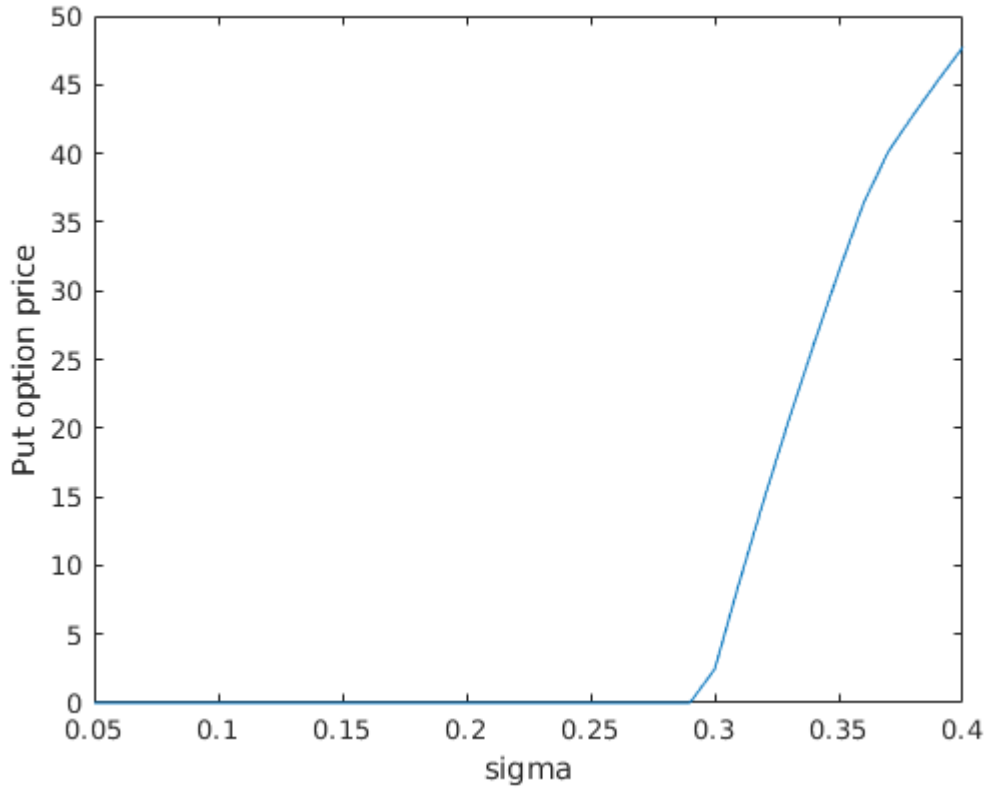
Varying r


-16
-16.5
-17
-17.5
-18
-18.5
-19
-19.5
-20
Call option price
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
r

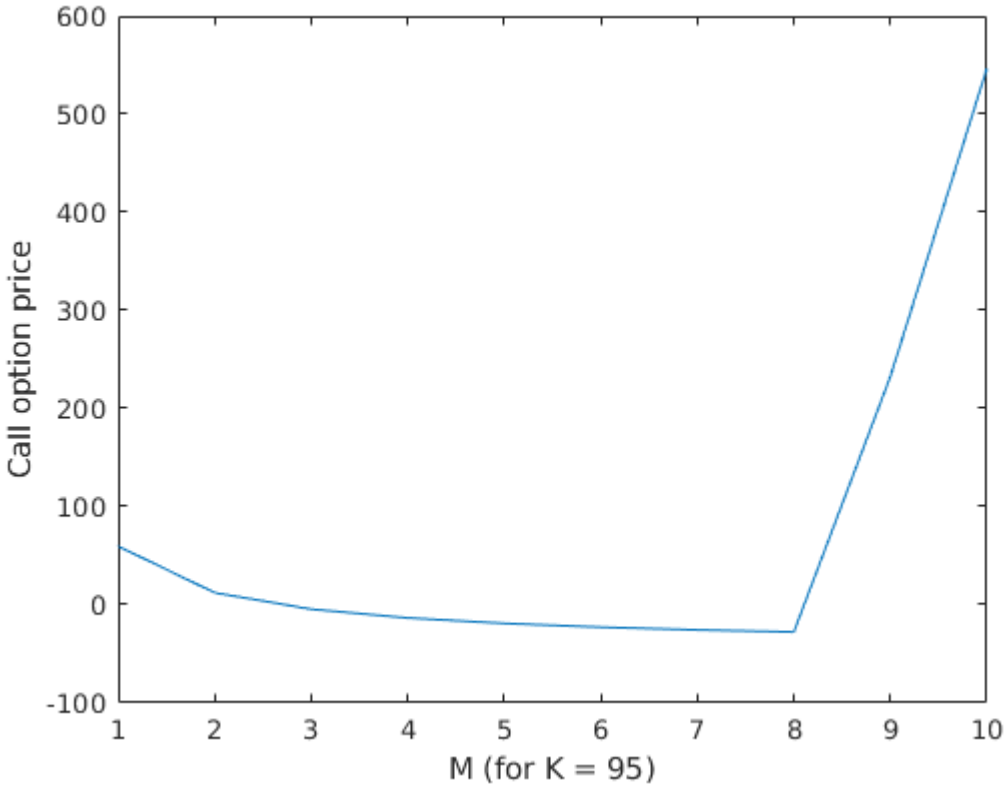


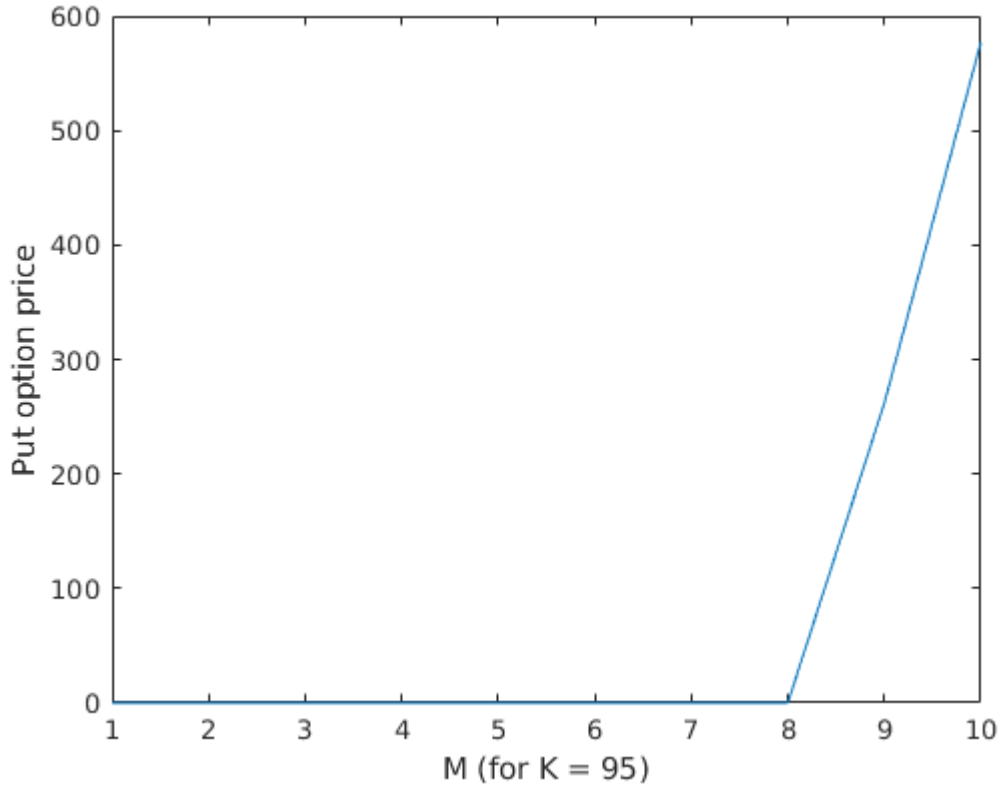
Varying sigma

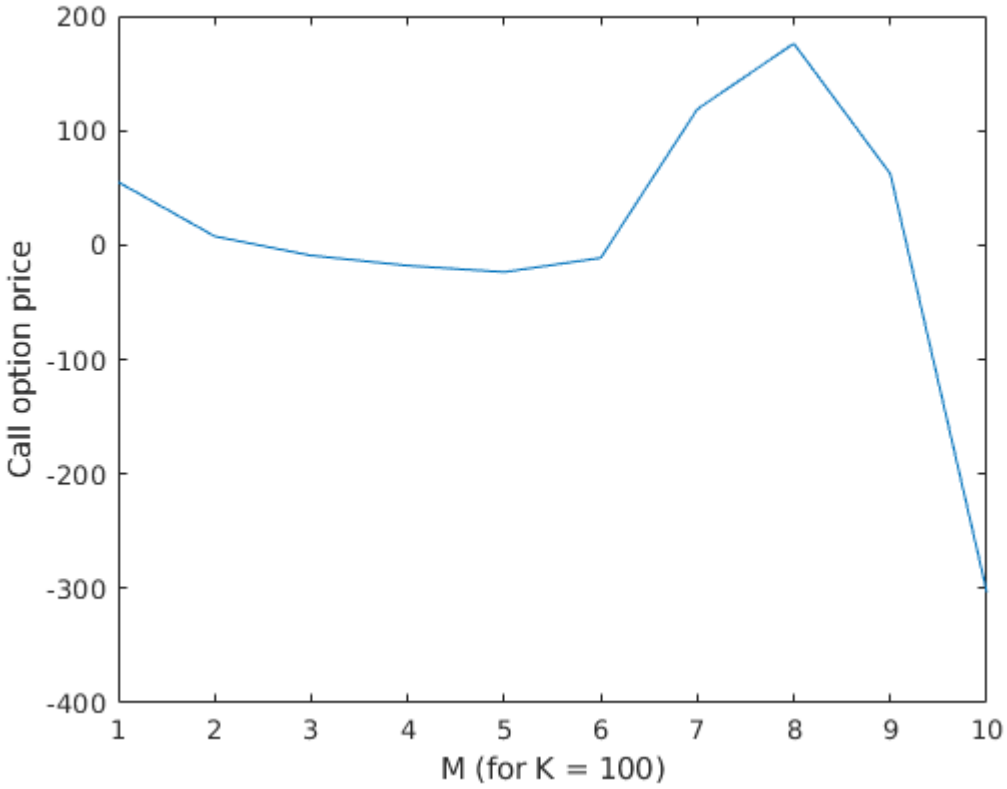


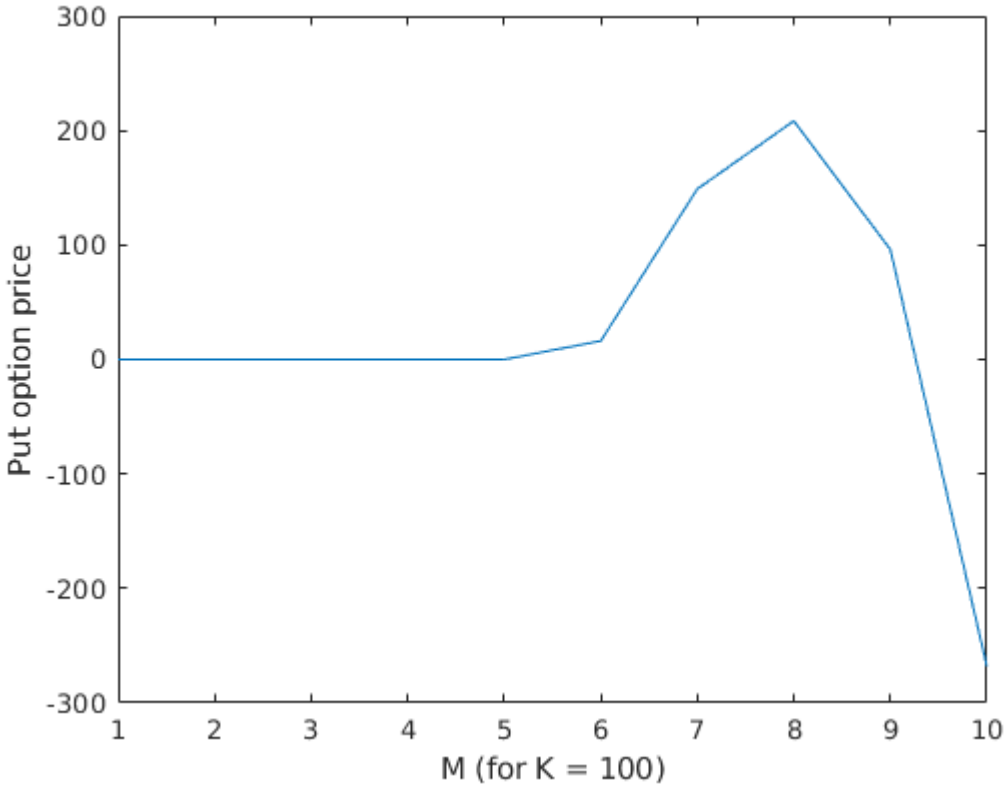


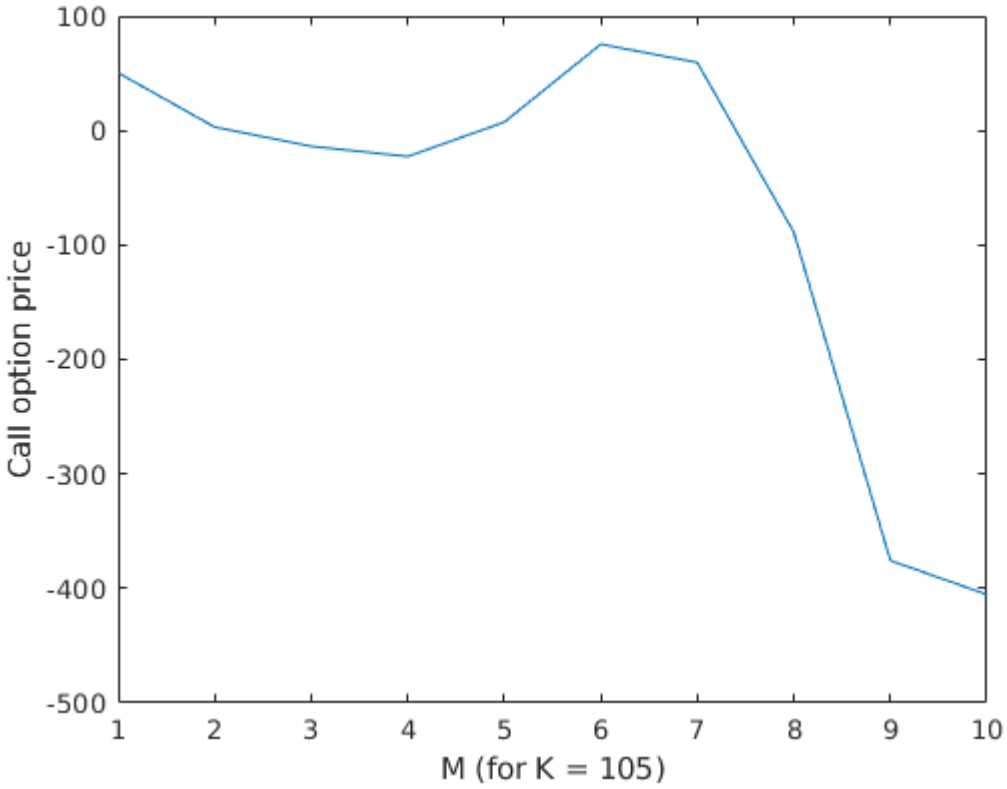
Varying M (for k=95,100,105)

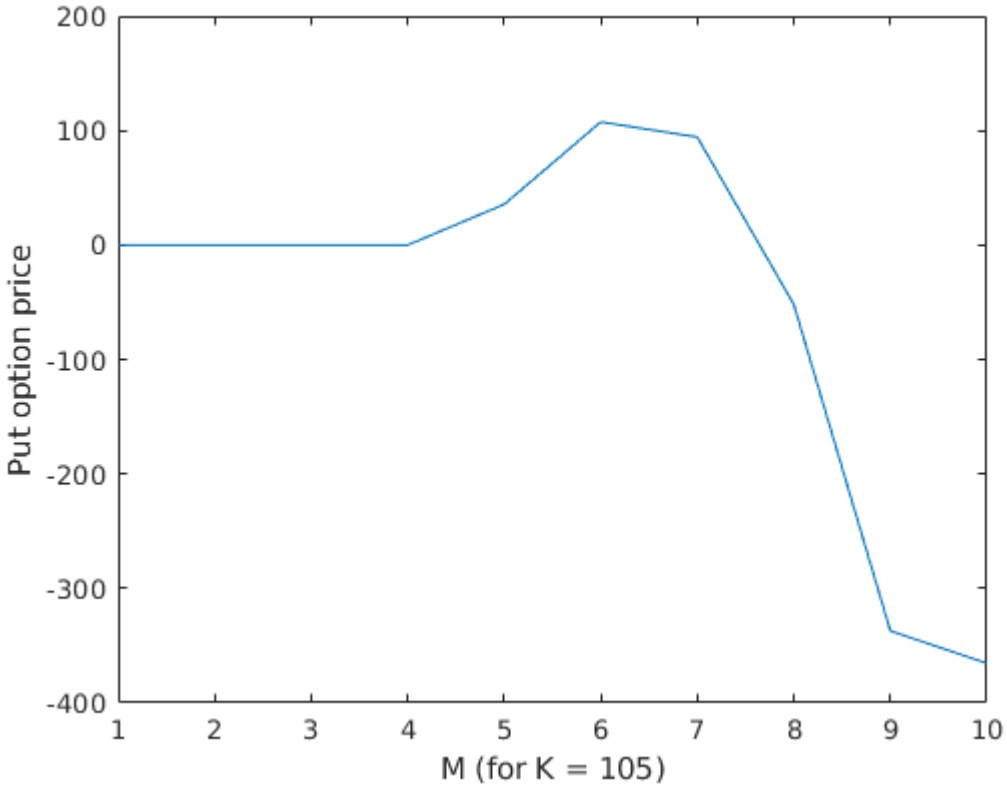



600
500
400
300
200
100
0
Put option price
1
2
3
4
5
6
7
8
9
10
M (for K = 95)


200
100
0
-100
-200
-300
-400
Call option price
1
2
3
4
5
6
7
8
9
10
M (for K = 100)


300
200
100
0
-100
-200
-300
Put option price
1
2
3
4
5
6
7
8
9
10
M (for K = 100)


100
0
-100
-200
-300
-400
-500
Call option price
1
2
3
4
5
6
7
8
9
10
M (for K = 105)


200
100
0
-100
-200
-300
-400
Put option price
1
2
3
4
5
6
7
8
9
10
M (for K = 105)