

Problem 1 American Put

```

r          0.015 u          1.03872808
sigma      0.274 d          0.96271586
K          65 p            0.4905019
F0         51.57 1-p        0.5094981
del t      0.01923077
N          5
EXP(-rdelt) 0.99971158
    
```

American Put

```

                                60.0350142
                                57.7966606
                                55.641762
                                53.567207
                                51.57
51.57          49.6472571          47.796202          46.014162          44.2985637
    
```

```

                                4.96498581
                                7.20333943
                                9.35823797
                                11.432793
                                13.43
13.43          15.3527429          17.203798          18.985838          20.7014363
    
```

```

                                0
                                -1
                                -1
                                -1
                                -1
                                -1
                                -1
                                -1
                                -1
                                0
    
```

```

                                4.96498581          65
                                7.20333943          65
                                9.35823797          65
                                11.432793          65
                                13.43          65
13.43          15.3527429          17.203798          18.985838          20.7014363          65
    
```

Problem 1 Call

r	0.015 u	1.03872808
sigma	0.274 d	0.96271586
K	52 p	0.4905019
F0	51.57 1-p	0.5094981
del t	0.01923077	
N	5	
EXP(-rdelt)	0.99971158	

European Call

				60.0350142
			57.7966606	
		55.641762		55.641762
	53.567207		53.567207	
51.57		51.57		51.57
	49.6472571		49.6472571	
		47.796202		47.796202
			46.014162	
				44.2985637

				8.03501419
			5.7949887	
		3.75122021		3.64176203
	2.28547546		1.785776	
1.33941999		0.87567389		0
	0.42939583		0	
		0		0
			0	
				0

				0
			1	
		0.94792688		0
	0.7062167		0.89439461	
0.47349575		0.45556092		0
	0.23204048		0	
		0		0
			0	
				0

Sell .4735 to Hedge 1 long call

Sell .4735 to Replicate 1 short call (note, you want to replicate a short call to hedge a long call)

Problem 1 Put

r	0.015	u	1.03872808
sigma	0.274	d	0.96271586
K	52	p	0.4905019
F0	51.57	1-p	0.5094981
del t	0.01923077		
N	5		
EXP(-rdelt)	0.99971158		

European Put

				60.0350142
			57.7966606	
		55.641762		55.641762
	53.567207		53.567207	
51.57		51.57		51.57
	49.6472571		49.6472571	
		47.796202		47.796202
			46.014162	
				44.2985637
				0
			0	
		0.11155859		0
	0.71962409		0.21902099	
1.76892412		1.30542588		0.43
	2.78010356		2.3520643	
		4.20137339		4.20379796
			5.98411161	
				7.7014363
				0
			0	
		-0.0517847		0
	-0.2932065		-0.1056054	
-0.5256392		-0.5441507		0
	-0.7673828		-1	
		-0.9997116		0
			-1	
				0
Buy .526 to hedge long put				
Sell 526 to replicate long put				

r	0.015 u	1.0666084
sigma	0.465 d	0.93755121
K	39 p	0.48388461
F0	38.68 1-p	0.51611539
del t	0.01923077	
N	5	
EXP(-rdelt)	0.99971158	

American Call

			50.061801
		46.9355021	
	44.0044368		44.0044368
41.256413		41.256413	
38.68	38.68		38.68
36.2644808		36.2644808	
	33.9998079		33.9998079
		31.8765611	
			29.8859084

			11.061801
		7.93550212	
	5.08784854		5.00443684
3.065462		2.42087154	
1.7752004	1.17108462		0
0.56650638		0	
	0		0
		0	
			0

			1	
		0.9710414		0
	0.73562032		0.93989975	
0.50059887		0.48495681		0
	0.25022149		0	
		0		0
			0	
				0

Sell .5005 to hedge long call
 Sell .5005 to replicate short