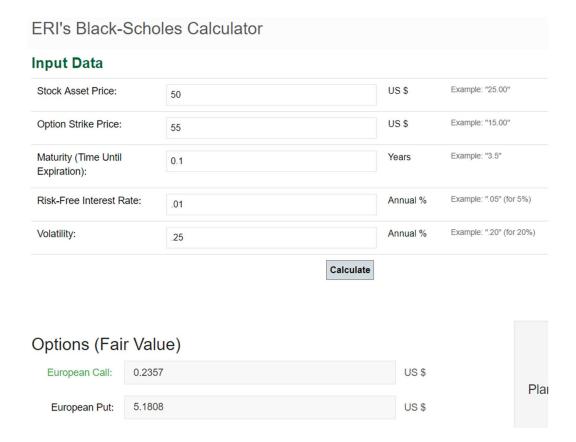
Setting and theoretical value in BS formula



Pricing using COS method and IV expansion

Below is the result.

Really really convergent!!

We can see the implied volatility expansion is precisely equal to the COS method rapidly. The truncationOrder is now only \sim O(numGrid) and has an asymptotic property.

```
Hyperparameters:
S0: 50 r 0.01 q 0 sigmaBSM 0.25
a and b (truncated interval):
-1.04611847785 0.851248118246
[ 11.52014812 17.16894285 5.83296472 -0.65984476 -0.46105836
                0.96447312]
+ \frac{1}{2} \left( \frac{1}{2}
calculate put option price using COS method:
numGrid: 5
5. 47621280901
numGrid: 20
5.17776647905
calculate put option price using IV expansion method:
numGrid: 5 truncationOrder: 5
5. 47621934325
```

numGrid: 20 truncationOrder: 20

5.17776647902