

HW3

Problem 1 (Analytical, optional). 2.1

Problem 2 (Analytical). 2.2

Problem 3 (Analytical). 2.3

Problem 4 (Analytical). 2.8

Problem 5 (Analytical). 2.13

Problem 6 (Coding). Consider a N -period binomial model for a European call option with the initial stock price S_0 , up factor u , down factor d , interest rate r , and strike price K . Implement the option price in two ways.

1. Direct formula using the binomial distribution, as we did in the class.
2. Recursively calculate the price backwards.

Use your code to calculate the option price for $S_0 = 4$, $u = 2$, $d = \frac{1}{2}$, $r = \frac{1}{4}$, $K = 5$, and $N = 10$.