Assignment 1 Advanced Financial Mathematics

1. A stock price is currently \$100. It is known that at the end of two months it will be either \$125 or \$90. The interest rate is 5% per annum with continuous compounding. What is the value of a two-month European call option with a strike price of \$105?

2. A stock price is currently \$120. It is known that at the end of four months it will be either \$100 or \$130. The interest rate is 3% per annum with continuous compounding. What is the value of a four-month European put option with a strike price of \$110.

3. A stock price is currently \$150. Over each of the next two six-month periods it is expected to go up by 10% or down by 10%. The interest rate is 7% per annum with continuous compounding. What is the value of a one-year European call option with a strike price of \$150.

4. For the situation considered in Exercise 3, what is the value of a one-year European put option with a strike price of \$150? Verify that the European call and European put prices satisfy the put-call parity formula.