Financial Mathematics
Pricing/hedging in many subperiods
Part 2
Let $X$ represent the price, three months from now, of some financial asset. Assume that the expected annual return is 2%. That is, assume that, if you invest $1 in the asset today, then its expected value, one year from today, is $1.02. That is, assume that 1.02 is the exponential \textbf{NOT} of the drift, but rather of the “augmented” drift. Assume that the annualized volatility is 0.35. (In the following problems, use three-month $= 0.25$ yrs.)

a. Find the annual drift.
b. Find three-month volatility.
c. Find three-month drift.
We analyze a particular stock over a time interval that starts today, and extends 100 days into the future. Assume that the current price is $5 per share. Assume that the annualized drift is 2.5%, that the annualized volatility is 40%.

Use the 70-30 400-subperiod CRR model.

a. Find the 6 hour uptick and downtick factors that calibrate to the above data.

b. Write a summation expression with binomial coefficients for the expected price of the stock at the end of the 100 days.