1. The bill yield was 0.9162 percent. The yield and price are related via the formula
\[ \frac{10000 - P}{10000} \times \frac{360}{76} = y \]
With the yield of 0.009162, the solution for the price is $9,980.66.

2. The interest rate is 1.07 percent. The interest owed is
\[ 10,000,000 \times \frac{1}{360} \times 0.0107 = 297.22 \]

3. We have two states here; State 1 in which the price of stock will rise 10%, and State 2 in which the price of stock will fall 5%.

Since the price of stock is $50, then if State 1 occurs a 10% increase of the current price of stock \((P_0)\) yields a new price \((P_1)\) of \(50(1+0.10) = 55\)

And if state 2 occurs, then a 5% decrease of the current price of stock \((P_0)\) yields a new price \((P_2)\) of \(50(1-0.05) = 47.50\)

Let \(D\)=the dividend per share paid out by the company. Then, if State 1 occurs, the holding period return is:
\[ R_1 = \frac{P_1 - P_0 + D}{P_0} = \frac{55 - 50 + 3}{50} = 0.16 \]
If State 2 occurs, the holding period return is:
\[ R_2 = \frac{P_2 - P_0 + D}{P_0} = \frac{47.5 - 50 + 3}{50} = 0.01 \]

The mean of the net holding period return is therefore:
\[ \mu_r = E(r) = \sum_{s=1}^{2} \pi(s)r(s) = (0.6)(0.16) + (0.4)(0.01) = 0.1 \]

The variance of the net holding period return is:
\[ \sigma_r^2 = \sum_{s=1}^{2} \pi(s)[r(s) - \mu_r]^2 = (0.6)(0.16 - 0.1)^2 + (0.4)(0.01 - 0.1)^2 = 0.0054 \]
4. For both stocks A and B, the probability of returns being -10% is 30% and the probability of returns being +20% is 70%. So the expected return on stocks A and B are both \(-0.03 + 0.14\) which is 11 percent. So the covariance is

\[
0.1*(-10 - 11)*(-10 - 11) + 0.2*(-10 - 11)*(20 - 11) + 0.2*(20 - 11)*(-10 - 11) + 0.5*(20 - 11)*(20 - 11) = 9
\]

5. The end-of-year prices of Amazon are
2015: $675.89
2016: $749.87

and so the holding period return is \(\frac{749.87 - 675.89}{675.89} = 10.95\%\).

6. \(\frac{100}{1.02} + \frac{150}{1.02^2} = 242.21\).

7. 3.91\% (using the IRR function)

8. (a) The mean and standard deviation are 0.0389\% and 1.1132\%, respectively.

(b) 5 days would have returns that are more than the mean plus 6 standard deviations. 11 days would have returns that are less than the mean minus 6 standard deviations. Note that if returns were normal an event like either of these would occur about once every 20 million years.