Problem Set #5 Solutions

1. Your investment has a 40% chance of earning a 15% rate of return, a 50% chance of earning a 10% rate of return and a 10% chance of losing 3%. What is the standard deviation of this investment?

A. 5.14%
B. 7.59%
C. 9.29%
D. 8.43%

E(r) = 0.4(.15) + 0.5(.10)+0.1(-.03) = 10.7%

$\sigma^2 = 0.4(.15-.107)^2 + 0.5(.10-.107)^2+0.1(-.03-.107)^2 = 0.002641$

$\sigma = 5.139\%$

2. Historically small firm stocks have earned higher returns than large firm stocks. When viewed in the context of an efficient market, this suggests that _____.

A. small firms are better run than large firms
B. government subsidies available to small firms produce effects that are discernible in stock market statistics
C. small firms are riskier than large firms
D. small firms are not being accurately represented in the data

3. The price of a stock is $38 at the beginning of the year and $41 at the end of the year. If the stock paid a $2.50 dividend what is the holding period return for the year?

A. 6.58%
B. 8.86%
C. 14.47%
D. 18.66%

$HPR = \frac{(41-38+2.50)}{38} = 0.14474$

4. The geometric average of -12%, 20% and 25% is _____.

A. 8.42%
B. 11.00%
C. 9.70%
D. 18.88%

Geometric average = $[(1-.12)x(1+.2)x(1+.25)]^{(1/3)} - 1 = 0.0969$

5. If you are promised a nominal return of 12% on a one year investment, and you expect the rate of inflation to be 3%, what real rate do you expect to earn?

A. 5.48%
B. 8.74%
C. 9.00%
D. 12.00%

real return = $\frac{1.12}{1.03} - 1 = 0.08738$