Asset Evaluation
Sample Problems

PRACTICE THESE PROBLEMS ON YOUR OWN TO GET A FEEL FOR HOW TO DO THEM
YOU HAVE FOUR (4) PROBLEMS TO WORK THROUGH

1. You want to purchase some type of annuity for your long-term retirement portfolio. The pay-off of the asset or its future value is roughly $50,000 at 8% interest and the pay-off period is 15 years. What should you currently expect to pay (present value) for this asset?

FV = $50,000
i = .08
N = 15

$$PV = FV / (1 + I)^{N}$$
$$PV = \$50,000 / (1 + .08)^{15}$$
$$PV = \$50,000 / 3.172169114$$
$$PV = \$15,762.08$$

Thus, based on our results, you should expect to currently pay $15,762 for the asset.

NOTE: DO NOT ROUND YOUR NUMBERS UNTIL THE END

2. You have been out of school now for 9 years. You want to purchase a new condo. You find a nice place (very cheap) over off of the river. The price of the place is $185,000 and you received a fixed mortgage rate of 5% over the standard 30 years. What should your monthly payments be?

P = $185,000
i = .05
q = 12
N = 30
Nq = 360

$$M = P (i / q) / [1 - (1 + i / q)^{-Nq}]$$
$$M = \$185,000 (.05 / 12) / [1 - (1 + .05 / 12)^{-360}]$$
$$M = 770.8333333 / 1 - 1.004166667^{-360}$$
$$M = 770.8333333 / 1 - .223826569$$
$$M = 770.8333333 / .776173431$$
$$M = \$993.12$$

Thus, your monthly mortgage would be $993. 12

1) The negative exponent may be a little tricky. Work with your calculator until you get the answer in the sample.

2) Do not run your steps together. Do one step at a time. Do not round until the end.

3. Your husband has his eye on a collection of investment securities (bonds) that he thinks can prove to be lucrative. The securities in total are valued at approximately $400, 000. The interest attached to those assets is 4% and is for 10 years. Convinced that the securities are worth it, your husband takes the family's retirement money and makes the transaction. What is the potential future value of these assets?

$FV = PV (1 + i)^N$ $FV = \$400,000 (1 + .04)^{10}$
PV = $400,000 $FV = \$400,000 (1.04)^{10}$
i = .04 FV = $400,000 (1.480244285)
N = 10 FV = $592,097. 71

Thus, your husband should expect to gross about $592,097. 71 from the investment. If he subtracts $400,000 (the original money he had to invest with) from the total gross, your husband gets

$592,097. 71 - $400,000 = $192,087. 71

Not bad for the old man. His profit is $192,087. 71.

You have now had examples of all the formulas. The last sample problem is yours to do on your own.

4. The future yield of one type of U.S. treasury bond is specified as $105.1797. The interest is 2.528%. The maturity is listed as 9/30/25. Given this information, what should you expect to currently pay for this bond?