1. (a) How much is \$175 to be received in exactly one year worth to you today if the interest rate is 12%? The value today is \$_____.
   (b) This same \$175 received in one year would be worth *more/less/the same* to you today if the interest rate rose to 17%.

2. Complete the formula that is used to calculate the PV on a 20 year 10% coupon bond with a \$1,000 face value that sells for \$1,200.
$$\$\_\_\_ = \frac{\$\_\_\_}{1+i} + \frac{C}{(1+i)^2} + \cdots + \frac{C}{(1+i)^{20}} + \frac{\$\_\_\_}{(1+i)^{20}}$$

3. If the interest rate is 10%, what is the PV of a security that pays you \$1,100 next year, \$1,250 the year after, and \$1,342 the year after that?

4. Calculate the PV of a \$1,300 discount bond with 6 years to maturity if the yield to maturity is 7%.

5. A lottery claims its grand prize is \$10 million that is paid over 5 years at \$2 million per year. If the first payment is immediate, what is the grad prize really worth if the interest rate is 6%?

6. What is the yield to maturity (YTM) on a \$5,000 face value discount bond maturing in one year that sells for \$4,347.83?

7. What is the yield to maturity (YTM) on a \$1,500 simple loan that requires a repayment of \$6,000 in five years' time?

8. (a) If the yield to maturity is 2% what is the current price of 3 year \$1,100 face value coupon bond with a 4% annual coupon rate?
   (b) Recalculate the current price if the yield to maturity is now 4%.
   (c) i. When the YTM is *greater than/equal to/less than* the coupon rate, the bond's current price is below its face value.
   ii. For a give maturity, the bond's current price *rises/falls/does not change* as the yield to maturity rises.
   iii. For a given YTM, a bond's value *rises/falls/does not change* as its maturity increases.
   iv. When the YTM is *greater than/equal to/less than* the coupon rate, a bond's current price equals its face value regardless of the number of years to maturity.

9. Consider a coupon bond that has a face value of \$1,200 and a coupon rate of 10%. The bond's current selling price is \$1,242.80 and it has 2 years to maturity. Calculate the YTM.

10. (a) What is the price of a perpetuity that has a coupon of \$65 per year and a YTM of 1.5%
    (b) If the YTM doubles, what is the new price?

11. You have just won \$20,000 from the state lottery, which promises to pay you \$1,000 tax free every year for 20 years. If the interest rate is 5%, answer the following:
    (a) In reality, your receive the first payment of \$1,000 today, which is worth \$_____ today.
    (b) The value of the second \$1,000 payment is worth \$_____ today.

12. A bond has a face value of \$800 and an 8% coupon rate. If the current price is \$740 and is expected to increase to \$760 next year, the current yield is _____ and the expected rate of capital gain is _____. This implies the expected rate of return is _____.