1) You deposit $1600 in a bank account. Find the balance after 3 years for each of the following situations.
   a) The account pays 1.75% annual interest compounded quarterly.

   b) The account pays 2.5% annual interest compounded monthly.

2) You want to have $2500 after 2 years. Find the amount you should deposit if the account pays 2.25% annual interest compounded monthly.

3) You buy a stereo system for $780. Each year t, the value V of the stereo system decreases by 5%. Write an exponential function that represents the situation. Then find the value of the stereo system after 5 years.

4) You drink a beverage with 120 milligrams of caffeine. Each hour h, the amount c of caffeine in your system decreases by about 12%. Write an exponential function that represents the situation.

5) The amount, in grams, of a certain radioactive element that is left after t-years is modeled by $P(t) = 500(.8)^t$
   a. Initially, how many grams of the element did you have?

   b. How much of the element was left after 3 years?

   c. Approximately when would you have only 10 grams left?

   d. What is the rate of increase/decrease for this radioactive element?

6) Suppose you place $20,000 into an interest bearing IRA that yields 10% each year.
   a. How much does the account earn in interest during the first year?

   b. How much does it earn in interest during the second year?

   c. Suppose you change your mind and only deposit $10,000, how much interest does it then earn in the first year?

   d. Write the formula for the total amount t-years later (assuming we deposited $10,000).

7) The value of a speedboat t years after being purchased can be modeled by the equation $y = 17000(.82)^t$.
   a. For how much was the boat originally purchased?

   b. By what percentage does the value of the boat depreciate (go down) each year?

   c. How much will the boat be worth after 6 years?

   d. Approximately, when will the boat be worth less than $1,000?

8) Greg can determine the amount of money in his bank account by using the formula shown, where t is the number of years since he opened the account. $f(t) = 1500(1.0275)^t$
   a. By what percentage does the amount of money in the account increase each year?

   b. How much money did Greg start with?

   c. How much money will Greg have in 10 years?

   d. How long will it take for Greg to have $3000 in his account?