This assignment is due on Tuesday February 5. You may turn it in during class or in Science Hall 236. Each student must turn in his/her own paper. You need not type your paper, but if you hand write it, make sure that it is legible. The more explanation you have the more credit you will receive, and thus the better chance you have to receive a grade of Satisfactory. Grades will be based on both accuracy of your solutions and your explanation of how you found your answers.

1. You’ve decided you need $100,000 (in current dollars) to send a child through college. If you have a child this year, how much money will you need in order to send the child to college, assuming that school costs increase at a rate of 7% per year?

2. You have a credit card that charges 18% interest per year and has a minimum payment of 2% per month. If you have a $2000 balance and you pay the minimum payment each month, what is your balance after 1 year? What is your balance after 2 years? What is your balance after 5 years?

3. Find a house for sale (in town, in a real estate magazine, or on the web). Assume that you’ll pay a 10% down payment and borrow the rest. Find a home loan rate for a 30 year loan (by looking in the paper, calling a bank, or finding one on the web). State the list price of the house you found, the interest rate for the loan you found, and where you found both (e.g., what website, bank, etc.).

   (a) Calculate the monthly payment for the loan.
   (b) Calculate the total cost for the house (the down payment together with all the monthly payments) and how much interest you paid.
   (c) Do the same calculations in the previous two parts if you had a 15 year loan at the same interest rate as in your previous calculation.

4. Suppose that you invest $100 a month at a 7% annual return. If you start this now and keep it up for 30 years, how much money will you have in 30 years?
5. Suppose that you are 25 years old and plan to retire when you are 60. You want to have an income of $1500 a month, in current dollars, from your investment to supplement your pension and social security. You want this income from age 60 to age 80. You can put money in an investment paying 8% annual interest, and inflation is expected to average 3%.

(a) How much do you need to receive in a month when you are 60 to be worth the same as $1500 now?

(b) How much do you have to have invested by age 60 in order to receive a monthly income for 20 years of the amount you found in the previous part?

(c) How much do you need to invest each month to obtain the money needed to receive your desired monthly income, provided you start investing at age 25?

(d) How much would you have to invest if you waited until age 45 to begin investing?