# [EQUAL MONTHLY PAYMENTS]

(§10.3 worksheet II)

Assume there is a principle of $P with an APR of $r$ (written as a decimal and not a percentage) compounded monthly. If you want to make $n$ equal monthly payments, then your payment $M$ is

$$M = \frac{P\left(1+\frac{r}{12}\right)^{n}\left(\frac{r}{12}\right)}{\left(1+\frac{r}{12}\right)^{n}-1}$$

1. Say you want to buy a $260,000.00 home.
    a. If you want to put 20% down on the house, how big of a loan will you need?

    b. Using the loan from part a, suppose you are offered a fixed rate 30 year mortgage at 4.3%. How much will your monthly payments be? How much will you spend at the end of your 30 year mortgage?

    c. The monthly payments from part b, you decide, are a little expensive. How much money would we have to put down so that our monthly payments are only $1000.00? (*hint: plug in 1000 for M and solve for P*)

2. Say you charge $667.84 to your emergency credit card which has an APR of 10.9% compounded monthly.
    a. If you plan to pay it off in 12 equal monthly payments, what will your payments be?

    b. How much money will you be paying in the end?

    c. If you plan to pay it off in 6 equal monthly payments, what ill your payments be? How much will you be paying the end?

3. Suppose you purchase a new car for $22,222.00 and get a 72 month loan with an APR of 1.9%.

    a. If you put down $6,000.00 and are charged the following fees, how much will your monthly payment be?
        - $196 for the license
        - $77 for the government certificate of title fees
        - $520 for GAP insurance
        - $75 for the title and registration processing fees from the dealership
        - $1,019.95 finance charge from the lender

    b. How much will you pay overall for the car?