Math 1030 **Workshop #2** **Due: July 14th, 2016**

Name: _____

1. Everyone can retire a millionaire. S&P 500 index funds historically have averaged about a 10% annual return. Suppose that you start making deposits into an index fund earning 10% compounded monthly when you are 25 years old. How much would you need to deposit each month in order to have $1,000,000 when you are 65?

Record the Excel command(s) you used to find your answer:

How much would you have saved if you put away $200 each month (for the same span of time and earning the same 10% c.m. rate of return)?

Record the Excel command(s) you used to find your answer:

2. Gilbert is saving up for his walkabout. In 5 years, Gilbert plans on hiking around Australia. He estimates that he will need $3,000 at the beginning of his walkabout (for travel/airfare). Then he'll need about $500 per month for living expenses as he wanders the roads and deserts. Suppose that he plans to wander for a whole year and that exactly $500 will be withdrawn from his account each month (at the beginning of the month). If Gilbert's saving account earns 2% compounded monthly, how much does he need to deposit each month to hit his target in 5 years?

Funds needed in 5 years: _____. Monthly deposits: _____.

Record the Excel command(s) you used to find your answer:

3. Cindy is opening a diner. She estimates that she will be able to afford $30,000 quarterly payments.

(a) If the bank offers her an 8% (compounded quarterly) loan for 5 years, how much can she afford to borrow?

Record the Excel command(s) you used to find your answer:

(b) Sam the Weasel has offered Cindy $400,000 if she makes those $30,000 quarterly payments to him for 5 years. Cindy says that she'll pass on that deal. Why? What rate is he charging? [Your answer should be of the form: XXX.XXX%]

Record the Excel command(s) you used to find your answer:

4. Carl took out a $45,000 car loan with a 7.25% (compounded monthly) interest rate. His car payment was $896.37.

(a) How long was Carl's original loan?

Record the Excel command(s) you used to find your answer:

(b) Suppose that Carl decided to pay $1,000 each month instead of his regular payment. How many full payments will Carl have to make? What will Carl's final (partial) payment be?

Number of full payments: _____. Final payment: _____.

Record the Excel command(s) you used to find your answer:

5. The Sadowskis just bought a $260,000 house. They put 10% down and took out a 15 year mortgage with a 3.25% interest rate (compounded monthly).

(a) Loan amount? _____ Monthly payment? _____

(b) How much interest will they pay during their second year? _____

(c) Fill out the following table:

Month	Beg. Balance	Payment	Interest	Amt. to Principal	End Balance
45					
46					

(d) 5 years into the loan, the Sadowskis decide to refinance their mortgage. They start a new 15 year mortgage at 2.5% (compounded monthly). What is their new payment?

_____

(e) (Back to the original loan.) If the Sadowskis pay $3,000 a month, how long would it take them to pay off their house? What would their final (partial) payment be?

It would take _____ years and _____ months. Their last payment would be $_____