Workshop #2

Name: _____

1. Little Jimmy is 10 years old. His parents have decided to put $100 a month into a mutual fund earning 11% compounded monthly. When Jimmy is 18 his parents plan to move this money into a much more conservative investment earning 3% compounded **quarterly**. How much will Jimmy be able to withdraw each quarter over his 4 years of college if his first withdrawal is made immediately (use the **beginning** of each quarter for withdrawals).

Balance when Jimmy is 18: _____.   Quarterly withdrawals: _____.

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

2. Laura wants to take out a 3 year long personal loan for some new furniture. After looking at her finances, she found that she can only afford to make $350 loan payments each month.

(a) Suppose Laura's bank will give her a 6.25% rate (compounded monthly). How much can she afford to borrow?

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

(b) An online banking site has offered to loan Laura $10,000 if she will pay $350 a month for 3 years. What rate are they charging? [Your answer should be of the form: XXX.XXX%]

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

3. George wants to buy a new car which costs $40,000. The dealer offers him 2 options: (1) Pay cash and get $5,000 cash back OR (2) Finance the car at 1.5% for 5 years. If George takes option #1, he plans to borrow the money from a bank at 8% compounded monthly (for 5 years).

(a) Which option is a better deal for George? _____

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

(b) If George takes option (2), what rate (compounded monthly) is he *really* being charged? [Your answer should be of the form: XXX.XXX%]

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

4. Bob has an investment worth $1,000,000 which is earning 12% interest compounded **annually**. For as long as he can, Bob plans to withdraw $200,000 each year.

(a) How many **full** withdrawals will Bob get to make?

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

(b) How much will Bob's final (partial) withdrawal be?

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

5. 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 20 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:

6. The Frenkels just bought a $350,000 house. They put 20% down and took out a 30 year mortgage with a 3.75% 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
76					
77					

(d) 10 years into the loan, the Frenkels decide to refinance their mortgage. They start a new 15 year mortgage at 3.25% (compounded monthly). What is their new payment?

   _____

(e) (Back to the original loan.) If the Frenkels pay $5,000 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 $_____