Homework 3

FYS 129: Mathematics and Finances

Instructions: These are problems about interest and can be solved using the spreadsheet provided in the course web page.

In all examples, assume interest is paid/charged *daily* (so use $n = 365$). When using monthly payments/deposits, use $d = 30.42$ (about the average number of days in a month) for the number of days between them.

In all you answers, round them to two decimal places. (So, 3.12354 is rounded to 3.12, 5678.6789 is rounded to 5678.68. Also, 1.235 is rounded to 1.24. (So, we round xxx.xx5 up, not down.))

Important Note: For percentages (like APR or APY), the same rule applies. So I round 12.5646% to 12.56%. *Do not* round 0.125646 to 0.13. (So, you round *before* dividing by 100.)

1) If I owe $235 in a credit card with an APR of 10.9%, how much will I owe in 18 months if I make no payments?

2) An APY of 1.5% corresponds to what APR? (Remember to round your answer to two decimal places, as explained in the instructions!)

3) I have \$3,170 in a savings account with an APY of 2%. If I make no deposits and take no money out, how many months will it take me to have \$4,000? **Round *up* to a whole number of months!** (So, you round 12.1 to 13 here, not to 12.)

4) If I owe \$2,057 on a credit card with APR of 9.8%, how much do I have to pay every month to pay it off in two years? (Assume no other purchases are made with this credit card.)

5) If I have a savings account with \$543 and APY of 1.3%, and make deposits of \$50 every month, how much will I have after 20 months?

6) If I buy a house for \$210,000, financed in 30 years with a fixed APR of 4.25%, how much will be my monthly payments? (Disregard any other cost, besides the price of the house.)

7) If my savings account has an APY of 3% and I have \$2,450 in it now, how much do I need to save every month to have \$5,000 in 3 years?

8) Suppose I have \$10,000 in my retirement account. Further, let's assume that the APY for the next 5 years is 2%, for the 10 following years 3%, and 4% after that.

I can put \$600 a month in this account and I want to retire when I have \$1,000,000. How many months will it take for me to retire? **Round *up* to a whole number of months!** (So, you round 12.1 to 13 here, not to 12.)