$$F = P(1+rt) \quad F = P\left(1 + \tfrac{r}{n}\right)^{nt} \quad F = D\frac{\left(1+\tfrac{r}{n}\right)^{nt}-1}{\tfrac{r}{n}} \quad P = R\frac{1-\left(1+\tfrac{r}{n}\right)^{-nt}}{\tfrac{r}{n}} \quad APY = \left(1 + \tfrac{r}{n}\right)^{n} - 1$$

1. (4pts) Lou deposits a certain amount of money in an account bearing 4.23% simple interest. After 8 months he withdraws \$462.69. How much did he deposit?

2. (5pts) True story: a short-term loan company advertises on its website that one can get a \$400 loan from them that is repaid after 14 days with \$470. What simple annual interest rate are they charging?

3. (6pts) What is a better deal on a certificate of deposit:
a) an account earning 3.17%, compounded weekly, or
b) an account earning 3.15%, compounded daily?

4. (6pts) On February 5th, 1997 the stock of Pepsico, Inc. closed at $25.26 per share. On February 5th, 2007 it closed at $64.83 per share. Find the annual compound interest rate that this growth corresponds to.

5. (6pts) Barack would like to use some of his own money to finance a political campaign. How much should he deposit weekly into an account bearing 5%, compounded weekly, if he would like to have $1,000,000 in a year-and-a-half?

6. (15pts) PC and Mac have spent a lot of time together lately, so they decided to jointly buy a plasma TV. The biggest they could find was a 103-inch retailing for $70,000 (I kid you not!), for which they have secured a 5-year loan at 8.49%, compounded monthly.

a) What is their montly payment on the loan?

b) How much do they owe after 4 years?

c) What are their total payments over the course of the loan?

d) Which portion of their 1st payment goes toward interest, and which towards the principal?

7. (8pts) If you deposit $400 every quarter in an account bearing 7.26%, compounded quarterly, how long will it take until you have $10,000 in the account?

Bonus. (5pts) A couple of newlyweds took out a 15-year, $234,000 loan to finance their new home. The interest rate on this loan is 5.73% compounded monthly, making their monthly payment $1940.65. How long will it be until they owe half the amount on the loan? *Hint: only one formula is needed.*