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

1. (8pts) Giorgio was pleasantly surprised to find \$1098.24 in an account he forgot about. If this account bears 4.8% simple interest, and his money was in the account for 3 years, how much had he initially deposited?

2. (12pts) A certain payday lender (with offices in Murray), advertises on their website that you can get a \$100 loan that you repay in 14 days with \$115. What simple annual interest rate are they charging?

3. (9pts) Isabella deposits \$300 into an account bearing 5.19% interest, compounded quarterly. How much does she have in 2 years?

4. (11pts) A coffee-drinker realizes that he spends \$3 every day on a cup of coffee. He ponders how much he would save in 2 years if instead he deposited this money daily into an account bearing 5.49%, compounded daily. While he ponders, you calculate and give the value of the account after two years.

5. (12pts) In 1992, your instructor could buy a gallon of milk for \$1.99. In 2008 he pays \$3.49 for a gallon of milk. What compounded annual “dairy” inflation rate does this growth correspond to?

6. (32pts) The Energizer Bunny's drum has worn out so he decides to get a new one for \$725. He will finance this purchase at 16.23% interest, compounded monthly, for 4 years.
- What is his monthly payment on the loan?
 - What are his total payments over the course of the loan? How much of this amount is for interest?
 - How much does he owe after 1 year?
 - How much of his 13th payment goes toward interest, and how much towards the principal?

7. (16pts) Once you are out of college and have a job, you would like to save up for a new \$23,000 car. If you can deposit \$800 quarterly into an account bearing 7.3%, compounded quarterly, how long will it take until you have the desired amount?

Bonus. (10pts) Sally deposits \$1,000 into an account bearing 4.4%, compounded weekly. For two years, she doesn't make any additional deposits. Then, she deposits \$25 every week for three years. How much is in this account five years from the initial deposit of \$1,000?