Finance: Problems

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1. Compute the balance for each account:
   (a) Initial balance of \$123, simple interest rate of 6.2% 3 times per year, for 3 years.
   (b) Initial balance of \$824, simple interest rate of 12.3% 9 times per year, for 5 years.
   (c) Initial balance of \$43.24, compounding interest rate of 3.2% 7 times per year, for 4 years.
   (d) Initial balance of \$2323.56, compounding interest rate of 9.7% weekly, for 10 years.
2. You have an account with \$55 in it. The account earns 2.6% interest compounding monthly. How long will it take for your account to have \$110 in it? Hint: think of this as "how long will it take for my money to double?"
3. You have an account with \$100 in it. The account earns 2.2% interest compounding monthly. How long will it take for your account to have \$300 in it? Hint: think of this as "how long will it take for my money to triple?"
4. You take out a loan for $\$3,200$. The loan has an interest rate of 21% compounding monthly. You want to pay it off in 2 years. (This problem roughly illustrates the problem of buying a big screen TV on a credit card.)
   (a) What will be the monthly payments?
   (b) After the loan is paid off, how much will it have cost you? (Hint: to figure this out, determine how many payments you made, and multiply that by the size of the payments).

(c) What's the percent difference between the amount you paid and the amount you borrowed? Use the borrowed amount as the reference.

5. You take out a loan for $\$204,200$. The loan has an interest rate of 6% compounding monthly. You want to pay it off in 20 years. (This problem roughly illustrates the cost of buying a house.)

   (a) What will be the monthly payments?

   (b) After the loan is paid off, how much will it have cost you?

   (c) What's the percent difference between the amount you paid and the amount you borrowed? Use the borrowed amount as the reference.

6. Every month you deposit \$25 into an account which earns 2.1% compounding monthly. How much money will be in your account after 5 years?

7. Suppose you want to make monthly deposits (each of the same size) into an account which earns 2.4% interest compounding monthly, hoping to have $\$10,000$ in 2 years. How much money will you need to deposit each month? Hint: look at the savings plan formula and solve for D.