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

1. (4pts) Solve the equation, rounding the answer to 6 significant digits.

$$(1 + r)^3 = 2.25$$

2. (4pts) What is the future value of \$700 deposited for 9 months in an account bearing simple interest of 10%?

3. (5pts) A woman deposits \$4,000 into an account bearing a simple interest rate of 8%. How long will it take until she has \$5,000 in the account?

4. (5pts) What is the annual percentage yield of an account bearing 4.71% interest if it is compounded daily?

5. (6pts) Peter would like to save \$24,000 to buy a new car. He can get a savings account bearing 5% compounded quarterly. How much should he deposit at the end of every quarter in order to have \$24,000 after 3 years?

6. (6pts) If inflation averages 4% over the next 10 years, how much will an item costing \$10 today cost in 2015?

7. (12pts) The bored teenagers from the last exam decided to go and fight a bull one night. Sneaking around a cattle farm in the darkness, they accidentally rammed the van of an animals' rights group (with protesters sleeping inside), and caused \$15,000 worth of damage and medical expenses. In order to cover the damage, they took out a 4-year loan at 9% interest, compounded monthly.

a) What is their monthly payment?

b) What is the balance on the loan after 3 years?

c) Use your result from a) to figure out what their monthly payment would be, had the damage been only \$7,500.

8. (8pts) How long will it take a deposit to triple if it is getting 15% interest, compounded semiannually?

Bonus. (5pts) A couple of newlyweds took out a 20-year, \$154,000 loan to finance their new home. The interest rate on this loan is 5.75% compounded monthly, making their monthly payment \$1081.21. Write the amortization schedule for the first three payments.