

Quiz 3 - Financial Math

Math 1030 - Dylan Zwick's Class

Fall 2007

Name: _____

Here are the formulas you may need:

Compound Interest Formula for Annual Compounding

$$A = P \times (1 + APR)^Y$$

Compound Interest Formula for Interest Paid n Times Per Year

$$A = P \left(1 + \frac{APR}{n}\right)^{nY}$$

Compound Interest Formula for Continuous Compounding

$$A = P \times e^{APR \times Y}$$

Savings Plan Formula (Regular Payments)

$$A = PMT \times \frac{\left[\left(1 + \frac{APR}{n}\right)^{nY} - 1\right]}{\left(\frac{APR}{n}\right)}$$

Variable Definitions

A = Accumulated Amount

P = Starting Principal

APR = Annual Percentage Rate (express as a decimal)

Y = Number of Years

n = Number of Compounding Periods per Year

PMT = Regular Payment

1. Different Compounding Periods - 15 points

Suppose you invest \$2,500 in an account that generates compound interest with an APR of 5% for 30 years.

(a) If your account compounds every year, how much money will you have in the account after 30 years? (3 points)

(b) If your account compounds every month, how much money will you have in the account after 30 years? (3 points)

(c) If your account compounds continuously, how much money will you have in the account after 30 years? (3 points)

(d) What is the APY (annual percentage yield) of the account if it compounds continuously? (3 points)

(e) Suppose that instead of generating compound interest the account generated simple interest with an APR of 5%. How much money would you have in the account after 30 years? (3 points)