*AAT

Chapter 5: Quiz Review 5.1-5.3 (IC/HW)

Name: Key

Date: _____ Period: _____

1. Solve the equation.

$\log x^2 = \log(-3x-2)$

$x^2 = -3x-2$

$x^2+3x+2=0$

$(x+2)(x+1)=0$

$x=-2$; $x=-1$

2. Solve the equation.

$9^{2x+6} = 9^{3x-9}$

$2x+6=3x-9$

$15=x$

3. In 1974, Johnny Miller won 8 tournaments on the PGA tour and accumulated $376,836 in official season earnings. In 1999, Tiger Woods accumulated $6,711,256 with a similar record. Find the annual interest rate needed for Miller's winnings to be equivalent in value to Woods' winnings.

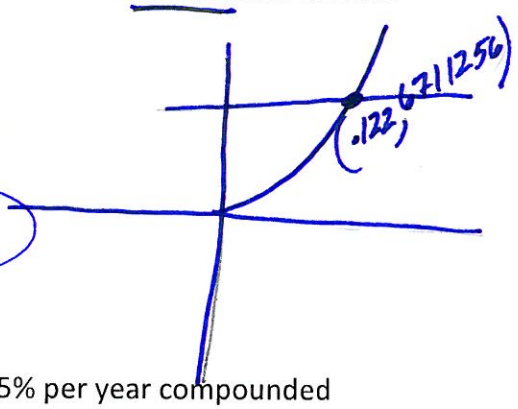
$A = P(1+\frac{r}{n})^{nt}$

$6711256 = 376836(1+\frac{r}{1})^{1(25)}$

$\begin{bmatrix} .01 \\ 1 \\ .1 \end{bmatrix} \begin{bmatrix} 300{,}000 \\ 7000000 \\ 1000 \end{bmatrix}$

1999 − 1974 = 25

$r = 12.2\%$



4. If $1200 is deposited in a savings account that pays interest at a rate of 7.25% per year compounded continuously, find the balance after 3 years.

$A = Pe^{rt}$

$= 1200e^{.0725(3)}$

$= \$1491.56$

5. Solve the equation.

$e^{x^2} = e^{14x-48}$

$x^2 = 14x-48$

$x^2-14x+48=0$

$(x-8)(x-6)=0$

$x=8$; $x=6$

6. Change to exponential form.

$\log_8 \frac{1}{512} = -3$

$8^{-3} = \frac{1}{512}$

7. Solve the equation.

$\log_7 x = \log_7(8-x)$

$X = 8 - X$

$2X = 8$

$X = 4$

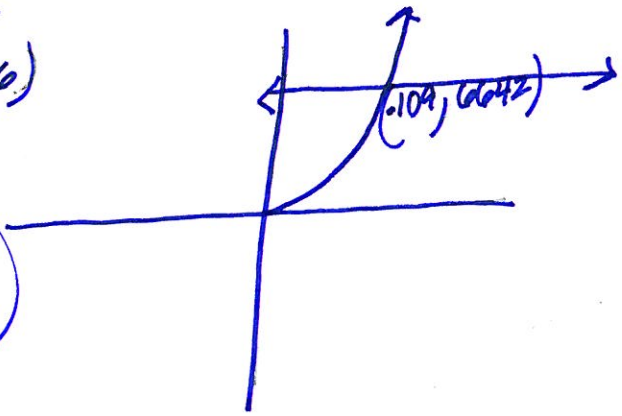
8. An investment of $1,143 increased to $6,642 in 16 years. If the interest was compounded continuously, find the interest rate.

$A = Pe^{rt}$

$6642 = 1143e^{r(16)}$

$\begin{bmatrix} .01 \\ 1 \\ .1 \end{bmatrix} \begin{bmatrix} -10 \\ 7000 \\ 1 \end{bmatrix}$

$\approx 11\%$



9. Bill invested $6,500 in a five year CD that pays eight percent compounded annually. What is the compound interest and amount that will be in a bank after five years?

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

$= 6500\left(1 + \frac{.08}{1}\right)^{1(5)}$

$A = \$9550.63$

10. Bill invested $1,900 in a four year CD that pays eight percent compounded monthly. What is the compound interest and amount that will be in the bank after four years?

$A = 1900\left(1 + \frac{.08}{12}\right)^{12(4)}$

$= \$2613.77$