**8-4 Homework**
Pre-Calculus

Name _____

## I. Compound Interest
Solve for the missing variable in each problem.

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

1. A = $2000      P = $800      r = 3.5%      n = 12      t = ? years

2. A = $2500      P = ?      r = 4.5%      n = 6      t = 4 years

3. A = ?      P = $2000    r = 4%      n = 6      t = 10 years

4. A = $4000      P = $2000    r = 4%      n = 6      t = ? years

## II. Continuous Compound Interest
Solve for the missing variable in each problem.

$$A = Pe^{rt}$$

5. A = $1200      P = $300      r = ?      t = 4 years

6. A = $800      P = ?      r = 6%      t = 10 years

7. A = ?      P = $2700    r = 3.5%      t = 3 years

8. A = $1800      P = $1350    r = 6.2%      t = ? years

## III. Continuous Growth and Radioactive Decay

Solve fore the rate of growth or decay. Round dot the number of places indicated.

9. What is the rate of decay if 250 grams remain of a material that has a half-life of 2700 years? (4 decimal places)

10. What is the rate of growth of 10 bacteria if after 3.5 hours there are 2,000 bacteria? (4 decimal places)

11. How long will it take 50 grams of a substance to decay to 10 grams if the rate of decay is k = -0.345?

12. How many bacteria will there be if 100 bacteria increase at a rate of k = 2.5/minute for 10 hours?