**Day 6: Applications of Exponential Functions Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Practice Assignment**

|  |  |
| --- | --- |
| **Growth:** $y=a(1+r)^{t}$ | **Decay:** $y=a(1-r)^{t}$ |
| Key Words: | Key Words: |

**Directions:** Create an exponential model and use it to solve each problem.

**Example 1:** Russell’s health and fitness blog is really taking off. The blog had 45,000 commenters this month and the number of commenters has consistently gone up by 10% per month. How many commenters can Russell expect to have in 5 months?

**Example 2:** A pot of soup, currently at 84C is left out to cool. If that temperature decreases by 5% per minute, what will the temperature be in 5 minutes?

**Example 3:** The population of a small town started at 233 people in 1999. If the population grows at a rate of 16% per year, how many people are now in the town in 2006?

|  |  |  |
| --- | --- | --- |
| Year | Job A | Job B |
| 1 | $30,000.00 | $24,000.00 |
| 2 | $30,660.00 | $25,080.00 |
| 3 | $31,334.52 | $26,209.00 |

Example 4: Raheem was offered two different jobs as a webmaster. Each job had different starting annual salaries and different increases each year. The table shows the salaries for the first few years. Use this information to answer questions 11−13. Round all answers to the nearest dollar.

Answer the following questions about Job A: Answer the following questions about Job B:

a. What is Raheem’s annual pay raise percent? a. What is Raheem’s annual pay raise percent?

b. Create an equation to represent Job A: b. Create an equation to represent Job B:

c. What is the annual salary for the 5th year? c. What is the annual salary for the 5th year?

d. At what year will Job B pay a higher annual salary than Job A?

Example 5: The value of a rare baseball card increases every year at a rate of 4%. Today, the card is worth $300. The owner expects to sell the card as soon as the value is over $600. How many years will the owner wait before selling the card? Round your answer to the nearest whole number.