

## Exponential Growth and Decay Practice

Name: \_\_\_\_\_ Date: \_\_\_\_\_

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$$\textit{Growth: } y = P(1+r)^t$$

$$\textit{Decay: } y = P(1-r)^t$$

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Find the following information for the equations below: growth or decay, starting value, growth or decay factor, growth or decay rate.

1.  $y = 300(1.45)^x$

Growth or Decay

Start value: \_\_\_\_\_

Factor: \_\_\_\_\_

Rate \_\_\_\_\_

2.  $y = 50(1.80)^x$

Growth or Decay

Start value: \_\_\_\_\_

Factor: \_\_\_\_\_

Rate \_\_\_\_\_

3.  $y = 5000(.75)^x$

Growth or Decay

Start value: \_\_\_\_\_

Factor: \_\_\_\_\_

Rate \_\_\_\_\_

4.  $y = 625(.30)^x$

Growth or Decay

Start value: \_\_\_\_\_

Factor: \_\_\_\_\_

Rate \_\_\_\_\_

5.  $y = 350(1.95)^x$

Growth or Decay

Start value: \_\_\_\_\_

Factor: \_\_\_\_\_

Rate \_\_\_\_\_

6.  $y = 28000(.40)^x$

Growth or Decay

Start value: \_\_\_\_\_

Factor: \_\_\_\_\_

Rate \_\_\_\_\_

**Use the exponential growth and decay formulas from above to answer the following questions.**

7. You deposit \$1500 in an account that pays 5% interest. Find the balance after 6 years.
  
8. The mice population is 25,000 and is decreasing by 20% each year. Write a model for this situation. What will be the mice population after 3 years?
  
9. The number of mosquitoes at the beach has grown by 75% every year since 1999. In 1999, there were 2,500 mosquitoes. Write a model for this situation. How many mosquitoes would you predict were at the beach in 2005?
  
10. Given the exponential model  $y = 200(.80)^x$ , tell whether the model represents exponential growth or decay. Then, tell what the growth/decay factor is and the growth/decay percent.
  
11. I bought a car for \$25,000, but its value is depreciating at a rate of 10% per year. How much will my car be worth after 8 years?