

Algebra 2  
7.1 – 7.3 Review

Name \_\_\_\_\_  
Date \_\_\_\_\_ Hour \_\_\_\_\_

Without graphing, determine whether the function represents exponential growth or exponential decay. Then find the  $y$ -intercept.

1.  $y = 0.99\left(\frac{1}{3}\right)^x$

2.  $y = 0.2(1.75)^x$

3.  $y = 185\left(\frac{5}{4}\right)^x$

**Predict the population of bacteria for each situation and time period.**

4. 55 bacteria that double every hour

a. after 3 hours

b. after 5 hours

5. 33 *E.coli* bacteria that triple every 30 minutes

a. after 4 hours

b. after 6 hours

6. The population of Indonesia was 191,256,000 in 1990 and was growing at a rate of 1.9% per year. Predict the population, to the nearest hundred thousand, of Indonesia in 2010.

7. The population of Florida is 17,091,244 is the 2011 census. If the population increases at a rate of 6.2% per decade, predict the population of Florida in 2025. Round your answer to the nearest ten thousand.

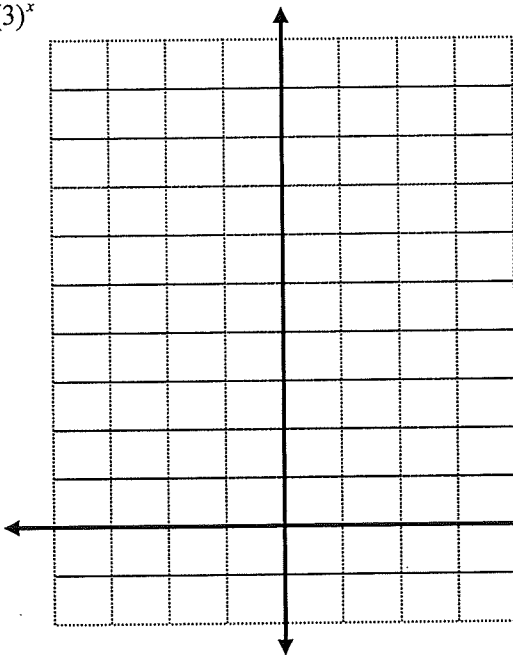
8. A dye is injected into the pancreas during a certain medical procedure. A physician injects 0.3 grams of the dye, and a healthy pancreas will secrete 4% of the dye each minute. Predict the amount of dye remaining, to the nearest hundredth of a gram, in a healthy pancreas 30 minutes after the injection.

9. A new car that sells for \$18,000 depreciates 25% each year. What is its estimated value after 4 years?

10. The price of a new home is \$350,000. the value of the home appreciates 2% each year.
- How much will the home be worth in 10 years?
  - What is the effect of doubling the annual interest rate?
  - What is the effect of doubling the investment period?
  - Which of the above has the greatest effect on the final amount of the investment?

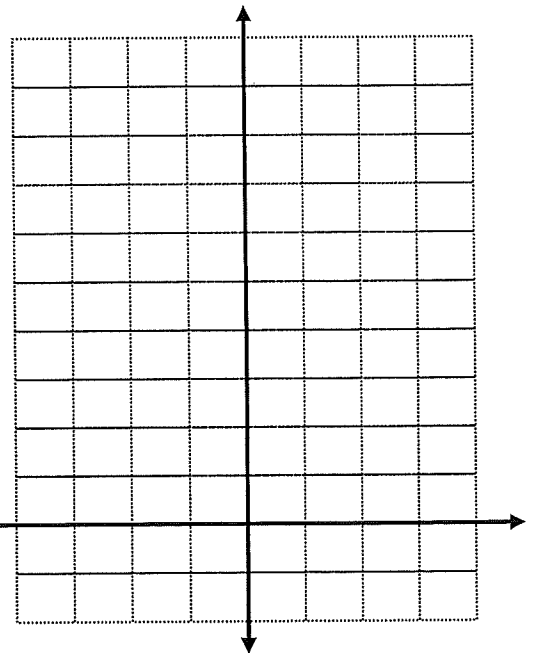
11.  $y = \frac{1}{2}(3)^x$

| x  | y |
|----|---|
| -3 |   |
| -2 |   |
| -1 |   |
| 0  |   |
| 1  |   |
| 2  |   |
| 3  |   |



12.  $s(t) = 0.3^t$

| x  | y |
|----|---|
| -3 |   |
| -2 |   |
| -1 |   |
| 0  |   |
| 1  |   |
| 2  |   |
| 3  |   |



13. Determine if each table represents a linear, quadratic, or exponential function.

- a. \_\_\_\_\_ b. \_\_\_\_\_ c. \_\_\_\_\_ d. \_\_\_\_\_

| x  | y  |
|----|----|
| 4  | 25 |
| 8  | 14 |
| 12 | 3  |
| 16 | -8 |

| x | y   |
|---|-----|
| 1 | 6   |
| 2 | 18  |
| 3 | 54  |
| 4 | 162 |

| x  | y  |
|----|----|
| 12 | 75 |
| 14 | 43 |
| 16 | 20 |
| 18 | 6  |

| x  | y   |
|----|-----|
| 3  | 160 |
| 6  | 80  |
| 9  | 40  |
| 12 | 20  |

Identify each function as linear, quadratic, or exponential.

14.  $g(x) = 10x + 3$  \_\_\_\_\_ 15.  $f(x) = (44 - x)x$  \_\_\_\_\_

16.  $f(x) = 12(12.5)^x$  \_\_\_\_\_ 17.  $h(x) = 0.5^x - 3.5$  \_\_\_\_\_

**Find the final amount of each investment.**

18. \$1000 at 6% interest compounded semiannually for 20 years.

29. \$750 at 5.6% interest compounded quarterly for 10 years.

20. \$1800 at 6.65% interest compounded daily for 8 years.

**Find the amount in a continuously compounded account for the given conditions.**

21. principal: \$5000  
annual interest rate: 6.9%  
time: 30 yr

22. principal: \$20,000  
annual interest rate: 3.75%  
time: 2 yr

Write each equation in logarithmic form.

23.  $3^4 = 81$

24.  $\left(\frac{1}{4}\right)^3 = \frac{1}{64}$

25.  $5^{-3} = \frac{1}{125}$

Write each equation in exponential form.

26.  $\log_{14} 196 = 2$

27.  $\log_6 \left(\frac{1}{1296}\right) = -4$

28.  $\log_{17} 289 = 2$

Solve each equation for  $x$ . Round your answers to the nearest hundredth. **SHOW WORK**

29.  $10^x = 1502$

30.  $10^x = 7.8$

31.  $10^x = 0.835$

Find the value of  $v$  in each equation. **SHOW WORK**

32.  $v = \log_4 256$

33.  $v = \log_{13} 1$

34.  $\log_5 v = 4$

