

**Chapter 8 Review**

Name \_\_\_\_\_

Simplify the following. Final answer should only have positive exponents.

1.  $x^3 \cdot 3^2 \cdot x \cdot 3$

2.  $(r^2s^2)^3$

3.  $(xy)^4 \cdot xy^2$

4.  $4^0x^3y^{-5}$

5.  $\left(\frac{1}{4}\right)^{-2}$

6.  $\frac{12x^4y^{-2}}{3x^7y^2}$

7.  $\frac{(2x^3y^4)^{-3}}{x^{-5}y^7}$

8.  $\left(\frac{-7p^3}{q^{-5}}\right)^2$

Tell what number belongs in the box to complete each equation.

9.  $7^3 \cdot 7[\ ] = 7^{11}$

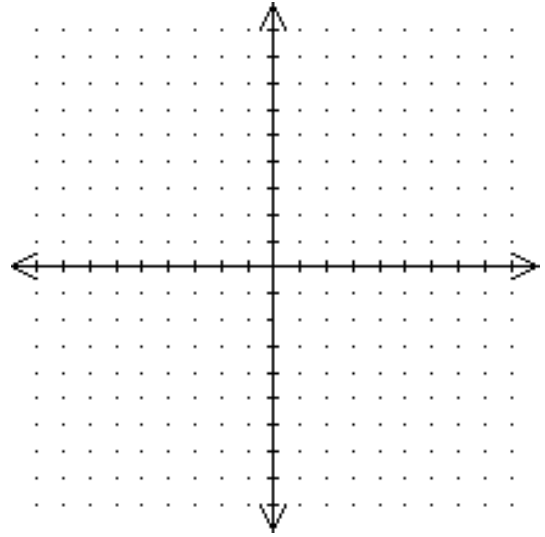
10.  $x^2 \cdot x[\ ] = \frac{1}{x^3}$

11.  $(t^5)[\ ] = 1$

12. Given the function  $y = 64\left(\frac{1}{2}\right)^x$ , answer the following questions.
- Is this function exponential growth or decay? Why?
  - What is the initial amount? Why?
  - What does  $y$  equal when  $x = 3$ ?
13. Given the function  $y = 100(1.05)^x$ , answer the following questions.
- Is this function exponential growth or decay? Why?
  - What is the initial amount? Why?
  - What does  $y$  equal when  $x = 3$ ?
14. You buy 4 pet mice from the pet store. The number of mice triples every month.
- Write a function for the number of mice after so many months.
  - How many mice will you have after one year (12 months)?
16. You buy a car for \$40,000 and it depreciates in value by 15% a year.
- Write a function for the amount of money your car is worth after so many years.
  - How much is your car worth after 3 years?

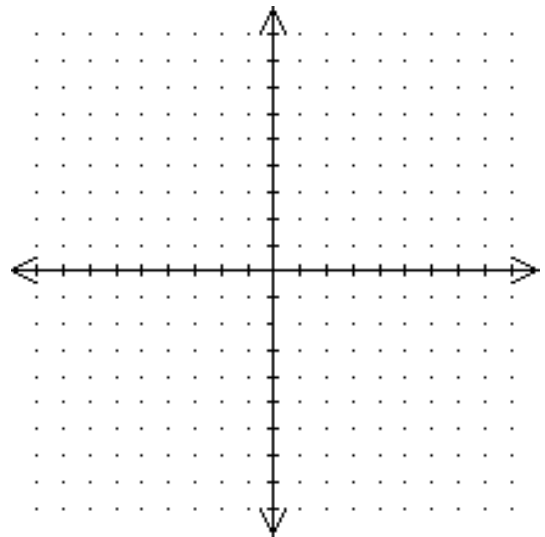
17. Fill in the table below for the function  $y = 3(2)^x$ , then graph it on the right.

$x$	$y$



18. Fill in the table below for the function  $y = \left(\frac{1}{4}\right)^x$ , then graph it on the right.

$x$	$y$



**Chapter 7 Review over solving systems of equations.**

Solve each system of equations with substitution or elimination. Graph paper is provided if needed.

19.  $y = 5x - 3$   
 $y = 3x + 1$

20.  $2x + 3y = 10$   
 $-10x - y = 6$

21.  $2y + 2y = 0$   
 $y = -6x - 10$