

Skills Practice**Solving Quadratic Equations by Using the Quadratic Formula**

Solve each equation by using the Quadratic Formula. Round to the nearest tenth if necessary.

1. $x^2 - 49 = 0$

2. $x^2 - x - 20 = 0$

3. $x^2 - 5x - 36 = 0$

4. $x^2 + 11x + 30 = 0$

5. $x^2 - 7x = -3$

6. $x^2 + 4x = -1$

7. $x^2 - 9x + 22 = 0$

8. $x^2 + 6x + 3 = 0$

9. $2x^2 + 5x - 7 = 0$

10. $2x^2 - 3x = -1$

11. $2x^2 + 5x + 4 = 0$

12. $2x^2 + 7x = 9$

13. $3x^2 + 2x - 3 = 0$

14. $3x^2 - 7x - 6 = 0$

State the value of the discriminant for each equation. Then determine the number of real solutions of the equation.

15. $x^2 + 4x + 3 = 0$

16. $x^2 + 2x + 1 = 0$

17. $x^2 - 4x + 10 = 0$

18. $x^2 - 6x + 7 = 0$

19. $x^2 - 2x - 7 = 0$

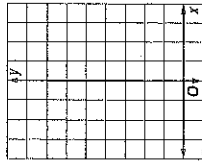
20. $x^2 - 10x + 25 = 0$

9-6 Skills Practice

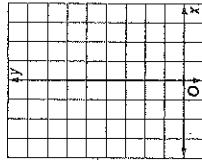
Exponential Functions

Graph each function. Find the y -intercept, and state the domain and range. Then use the graph to determine the approximate value of the given expression. Use a calculator to confirm the value.

1. $y = 2^x$; $2^{2.3}$

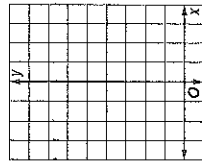


2. $y = \left(\frac{1}{3}\right)^x$; $\left(\frac{1}{3}\right)^{-1.6}$

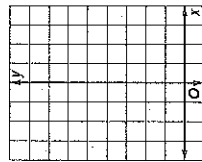


Graph each function. Find the y -intercept, and state the domain and range.

3. $y = 3(2^x)$



4. $y = 3^x + 2$



Determine whether the set of data shown below displays exponential behavior. Write *yes* or *no*. Explain why or why not.

5.

y	-3	-2	-1	0
x	9	12	15	18

6.

y	0	5	10	15
x	20	10	5	2.5

7.

y	4	8	12	16
x	20	40	80	160

8.

y	50	30	10	-10
x	90	70	50	30

9-7 Skills Practice

Growth and Decay

1. **POPULATION** The population of New York City increased from 8,008,278 in 2000 to 8,168,388 in 2005. The annual rate of population increase for the period was about 0.4%.

a. Write an equation for the population t years after 2000.

b. Use the equation to predict the population of New York City in 2015.

2. **SAVINGS** The Fresh and Green Company has a savings plan for its employees. If an employee makes an initial contribution of \$1000, the company pays 8% interest compounded quarterly.

a. If an employee participating in the plan withdraws the balance of the account after 5 years, how much will be in the account?

b. If an employee participating in the plan withdraws the balance of the account after 35 years, how much will be in the account?

3. **HOUSING** Mr. and Mrs. Boyce bought a house for \$96,000 in 1995. The real estate broker indicated that houses in their area were appreciating at an average annual rate of 7%. If the appreciation remained steady at this rate, what was the value of the Boyce's home in 2009?

4. **MANUFACTURING** Zeller Industries bought a piece of weaving equipment for \$60,000. It is expected to depreciate at an average rate of 10% per year.

a. Write an equation for the value of the piece of equipment after t years.

b. Find the value of the piece of equipment after 6 years.