Review Test
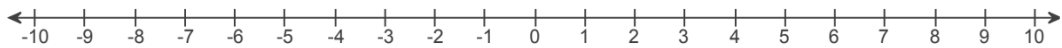
1. Write the set using set-builder notation.

   {2, 4, 6, 8}

2. Use the number line shown to determine whether $-6 < -5$ is true or false.

3. Evaluate.

   -5^3

4. Simplify the expression.

   $-\dfrac{7}{9}(45u)(7v)$

5. Simplify the expression.

   $\left(8x^3y\right)\left(-7x^2y^5\right)$

6. Multiply.

   $(7x + 9y)^2$

7. Factor completely.

   $4xt + 12xr + 3yt + 9yr$

8. Write the rational expression in lowest terms.

   $\dfrac{7y - 35}{3y - 15}$

9. Find the product or quotient.

   $\dfrac{y^2 - y - 6}{y^2 - 3y - 10} \div \dfrac{y^2 + 9y + 20}{y^2 - y - 20}$

10. Simplify this complex fraction.

$$\dfrac{-\dfrac{1}{2}}{\dfrac{1}{18}}$$

11. Find the square root.

$$\sqrt{0.36}$$

12. Simplify the following radical.

$$3\sqrt{45}$$

13. Rationalize the denominator.

$$\dfrac{15}{\sqrt{75}}$$

14. Solve the equation.

$$7(5x + 9) = 18 - (x + 9)$$

15. Use the square root property to solve the equation.

$$x^2 = 144$$

16. Solve the inequality. Write the solution set in interval notation.

$$14 \le 3y + 17 \le 29$$

17. For the points P and Q do the following.
    (a) Find the distance d(P,Q).
    (b) Find the coordinates of the midpoint M of the segment PQ.

$$P\left(3\sqrt{3}, 7\sqrt{5}\right), Q\left(\sqrt{3}, -\sqrt{5}\right)$$

18. For each equation, **(a)** give a table with at least three ordered pairs that are solutions, and **(b)** graph the equation.
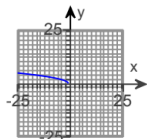
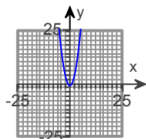$y = \sqrt{x - 1}$

(a) Complete the following table.

x	y
	0
	1
	2

(b) Choose the correct graph from below.

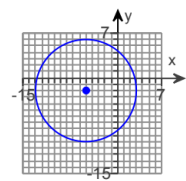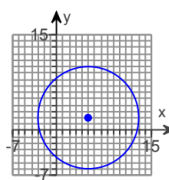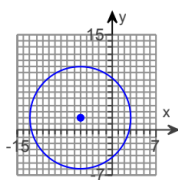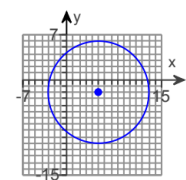○ **A.**

○ **B.**

○ **C.**
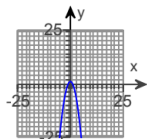
○ **D.**
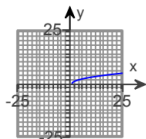
19. Complete exercises 47-50 by selecting the correct graph for each exercise below.
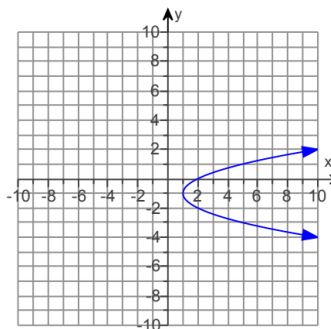
47. $(x - 5)^2 + (y - 2)^2 = 64$

48. $(x - 5)^2 + (y + 2)^2 = 64$

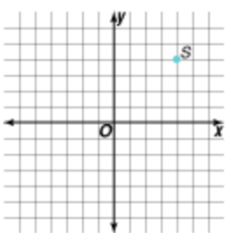49. $(x + 5)^2 + (y - 2)^2 = 64$

50. $(x + 5)^2 + (y + 2)^2 = 64$

20. Decide whether the relation defined by the graph defines a function, and give the domain and range.

21. State the domain of the relation {(1, 6), (-2, 3), (5, 7), (5, 9)}.

22. In what quadrant is point S.

23. Find the product $(2x + 3)(3x - 2)$.

24. Find the area of a triangle with base $2x + 3$ and height $3x - 1$.

25. Factor $12a^2b + 30ab^2$

26. Factor $x^2 - 4x - 32$.