

Quarterly 1 Review
Algebra 2

Find the x-intercept and the y-intercept of the graph of each equation. Then graph the equation using the intercepts.

1. $5x - 3y = 30$

2. The first equation of the system below is multiplied by 5. By what number would you multiply the second equation to eliminate the x variable by adding?

$$\begin{aligned}2x - 3y &= 6 \\5x + y &= 10\end{aligned}$$

3. If you were to solve the system of equations using substitution, what would you plug into the second equation for y?

$$\begin{aligned}3x - y &= 10 \\x + 3y &= -6\end{aligned}$$

4. Solve the system of equations by graphing.

$$\begin{aligned}x - 2y &= 0 \\y &= 2x - 3\end{aligned}$$

5. $\begin{bmatrix} 2 & 4 \\ 3 & -1 \end{bmatrix} \cdot \begin{bmatrix} 3 & -2 & 7 \\ 6 & 0 & -5 \end{bmatrix}$

6. Find the inverse of the matrix, if it exists. $\begin{bmatrix} 2 & -5 \\ 3 & 1 \end{bmatrix}$ When does an inverse not exist?

7. Find $A - 2B$.

$$\text{Matrix } A = \begin{bmatrix} 12 & 2 & 12 \\ -6 & -4 & 30 \end{bmatrix} \text{ and } B = \begin{bmatrix} 7 & -9 & 0 \\ 18 & 19 & -32 \end{bmatrix}.$$

8. Write the system of equations that is represented by the matrix equation.

$$\begin{bmatrix} 1 & -5 \\ 9 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 9 \\ -1 \end{bmatrix}$$

9.

What is the solution of the matrix equation below?

$$\begin{bmatrix} -6 & 3 \\ 10 & -2 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 60 \\ -22 \end{bmatrix}$$

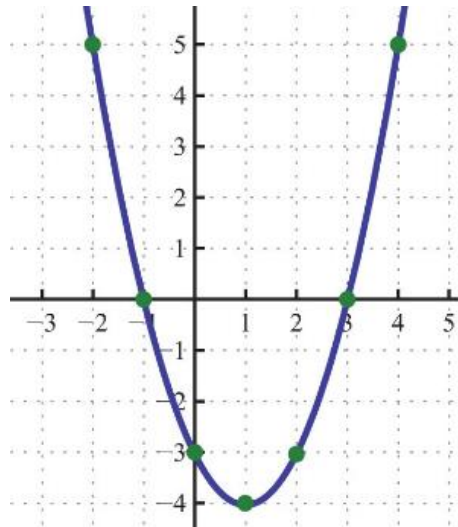
10. $3x - y = 0$
 $5x + 2y = 22$

11. $5x + 2y = 4$
 $3x + 4y + 2z = 6$
 $7x + 3y + 4z = 29$

12. Solve the inequality. Then graph the solution set on a number line.

$$8 - 6x \geq -10$$

Use the following graph for questions 13-20.



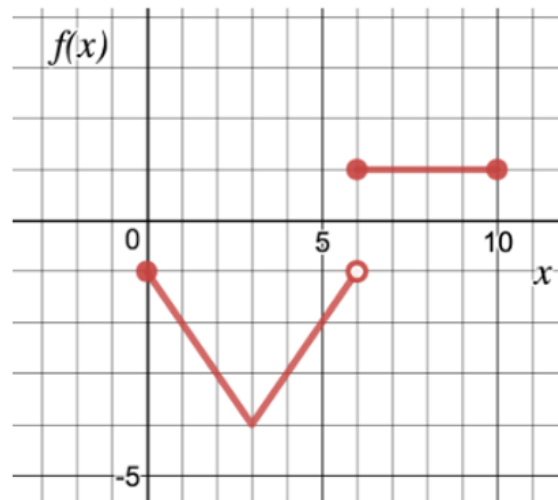
Identify the following information for the function of each graph

13. Domain:
 14. Range:
 15. X-intercept(s):
 16. Y-intercept(s):
 17. Interval positive:
 18. Interval negative:
 19. Interval increasing:
 20. Interval decreasing:
21. What transformations of $f(x) = x^2$ are applied to the function $g(x) = (x - 4)^2 - 1$.

Vertical Translation:

Horizontal Translation:

22. Find the following:



a. $f(0) =$

b. $f(4) =$

c. $f(6) =$

d. $f(10) =$

23. Evaluate the following for $f(x) = \begin{cases} x^2 & \text{if } x < 2 \\ x + 1 & \text{if } x \geq 2 \end{cases}$.

a. $f(-3) =$

b. $f(40) =$

c. $f(2) =$

d. $f(5) =$