

1. Use substitution to determine whether the given ordered pairs are solutions of the given equation. 29

$$\left(\frac{4}{3}, \frac{5}{4}\right), \left(1, \frac{1}{2}\right); 6x - 4y = 4$$

Is $\left(\frac{4}{3}, \frac{5}{4}\right)$ a solution?

☐ Yes

☐ No

Is $\left(1, \frac{1}{2}\right)$ a solution?

☐ Yes

☐ No

2. Complete ordered pairs for the equation, and then graph the equation.

$$5x - 4y = 20$$

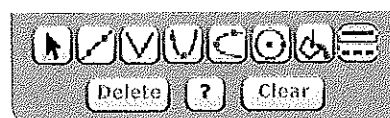
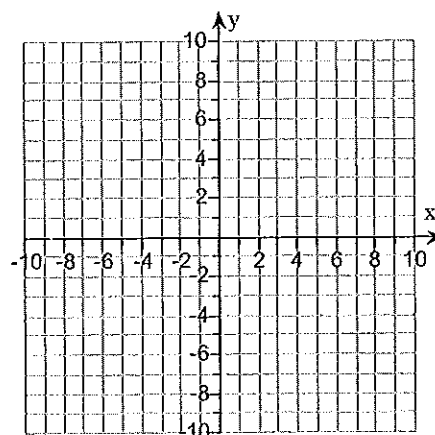
$(0, \square)$

(Simplify your answer. Type an integer or a fraction.)

$(\square, 0)$

(Simplify your answer. Type an integer or a fraction.)

Use the graphing tool on the right to graph the equation.



3. Find the distance between the points. Give an exact answer and an approximation to three decimal places.

$(-7, 5)$ and $(-1, -5)$

The exact distance is $\square$.

(Simplify your answer. Type an exact answer, using radicals as needed.)

The approximate distance is $\square$.

(Round to the nearest thousandth as needed.)

4. The points $(-6, -3)$ and $(8, 7)$ are the endpoints of the diameter of a circle. Find the length of the radius of the circle.

The length of the radius is .

(Round to the nearest hundredth as needed.)

5. Find the midpoint of the segment with the given endpoints.

$(1, 4)$ and $(-4, -8)$

The midpoint is .

(Type an ordered pair.)

6. Find the equation for the circle with a diameter whose endpoints are $(-4, -3)$ and $(-1, 4)$.

Choose the correct equation.

☐ A. $\left(x + \frac{5}{2}\right)^2 + \left(y - \frac{1}{2}\right)^2 = \frac{29}{2}$

☐ C. $(x + 4)^2 + (y + 3)^2 = \frac{29}{2}$

☐ B. $(x + 5)^2 + (y - 1)^2 = 58$

☐ D. $\left(x + \frac{5}{2}\right)^2 + \left(y - \frac{1}{2}\right)^2 = 58$

7. Find the center and the radius of the circle. Then graph the circle.

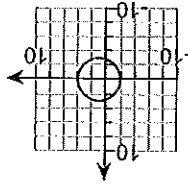
$(x - 1)^2 + y^2 = 3$

The center is .

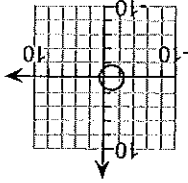
(Type an ordered pair.)

The radius is .

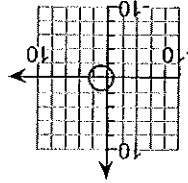
(Type an exact answer, using radicals as needed.)



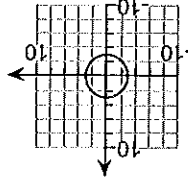
☐ A.



☐ B.



☐ C.

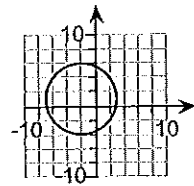


☐ D.

Choose the correct graph.

8.

Find an equation of the circle having the given graph. Express the equation in standard form.

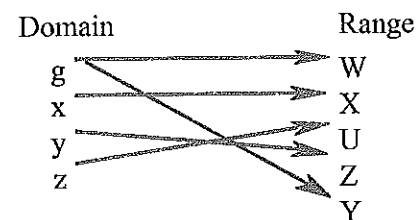


Choose the correct equation.

- ☐ A. $(x+2)^2 + (y-1)^2 = 5^2$
☐ B. $(x-2)^2 + (y+1)^2 = 5$
☐ C. $(x-2)^2 + (y+1)^2 = 5^2$
☐ D. $(x+2)^2 + (y-1)^2 = 5$

9.

Determine whether the correspondence is a function.



Is this correspondence a function?

- ☐ No
☐ Yes

10.

Determine whether the relation is a function.
Identify the domain and the range.

$$\{(-4,1), (0,1), (9,1), (4,1), (-3,1)\}$$

Is the relation a function?

- ☐ No
☐ Yes

The domain is $\{\square\}$.

(Use commas to separate answers. Type each answer only once.)

The range is $\{\square\}$.

(Use commas to separate answers. Type each answer only once.)

11.

Given that $g(x) = 3x^2 + 4x + 3$, find each of the following.

a) $g(-2)$

b) $g(p+3)$

a) $g(-2) = \square$ (Simplify your answer.)

b) $g(p+3) = \square$ (Simplify your answer.)

Given that $g(x) = \frac{x-8}{x+2}$, find each of the following.

- a) $g(9)$ b) $g(8)$ c) $g(-2)$ d) $g(-11.25)$ e) $g(x+h)$

a) Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

☐ A. $g(9) = \blacksquare$ (Simplify your answer.)

☐ B. $g(9)$ does not exist.

☐ C. $g(9)$ is not a real number.

b) Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

☐ A. $g(8) = \blacksquare$ (Simplify your answer.)

☐ B. $g(8)$ does not exist.

☐ C. $g(8)$ is not a real number.

c) Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

☐ A. $g(-2) = \blacksquare$ (Simplify your answer.)

☐ B. $g(-2)$ does not exist.

☐ C. $g(-2)$ is not a real number.

d) Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

☐ A. $g(-11.25) = \blacksquare$

(Type an integer or decimal rounded to three decimal places as needed.)

☐ B. $g(-11.25)$ does not exist.

☐ C. $g(-11.25)$ is not a real number.

e) Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

☐ A. $g(x+h) = \blacksquare$ (Simplify your answer.)

☐ B. $g(x+h)$ does not exist.

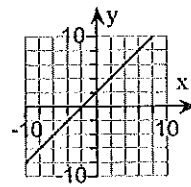
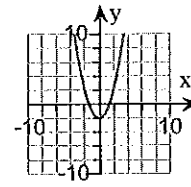
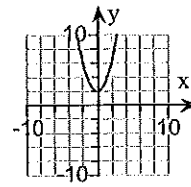
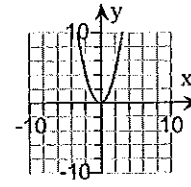
☐ C. $g(x+h)$ is not a real number.

13.

Graph the function on paper.

$$f(x) = x^2 + 2$$

Choose the correct graph.

☐ A.☐ B.☐ C.☐ D.

Graph the following square root functions, f and g , in the same rectangular coordinate system. Use the integer values of x given to the right of the functions to obtain ordered pairs.

$f(x) = \sqrt{x}$ $x = 0, 1, 4, 9$
 $g(x) = \sqrt{x - 6}$ $x = 6, 7, 10, 15$

x	$f(x)$
0	
1	
4	
9	

Fill in the appropriate values for $f(x)$.

x	$f(x)$
0	
1	
4	
9	

Fill in the appropriate values for $f(x)$.

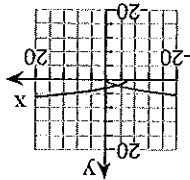
x	$g(x)$
6	
7	
10	
15	

Fill in the appropriate values for $g(x)$.

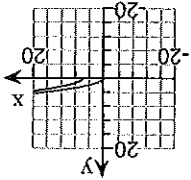
x	$g(x)$
0	
6	
7	
10	
15	

Fill in the appropriate values for $g(x)$.

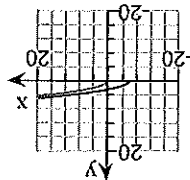
Which of the following shows the graphs of $f(x) = \sqrt{x}$ and $g(x) = \sqrt{x - 6}$?



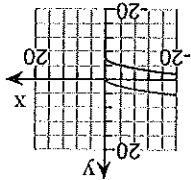
○ B.



○ C.



○ D.

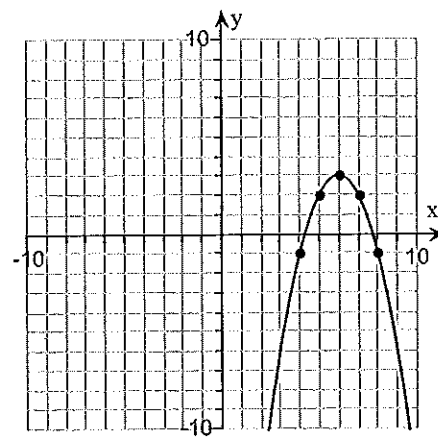


15. The graph of the function $h(x)$ is shown. Find the function values $h(4)$, $h(6)$, and $h(7)$.

$$h(4) = \square$$

$$h(6) = \square$$

$$h(7) = \square$$

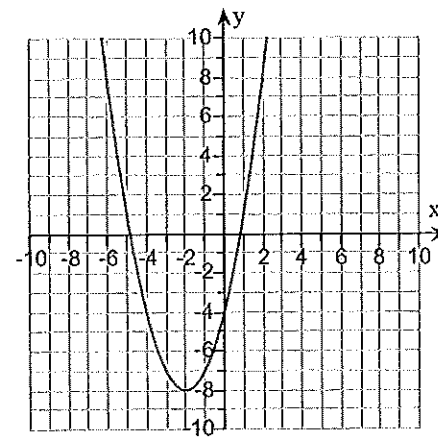


16. Determine if the graph is a function.

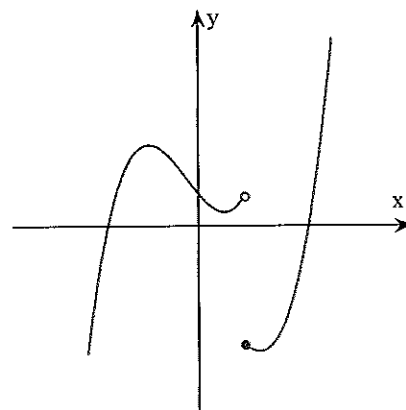
Using the vertical line test, is this the graph of a function?

☐ No

☐ Yes



17. Determine whether the graph is that of a function. An open dot indicates that the point does not belong on the graph.



Is the graph the graph of a function?

☐ No

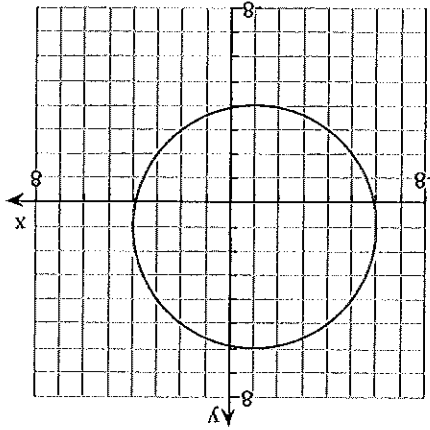
☐ Yes

18.

Determine if the graph is a function.

- ☐ Yes
☐ No

Is this the graph of a function?



19.

Find the domain of the function.

$$g(x) = \frac{x^2 + 13x + 30}{x}$$

What is the domain of the function $g(x)$?

- ☐ A. $\{x \mid x \neq 0\}$
☐ B. $\{x \mid x \neq 3\}$
☐ C. $\{x \mid x \neq -3 \text{ and } x \neq -10\}$
☐ D. $\{x \mid x \text{ is a real number}\}$

20.

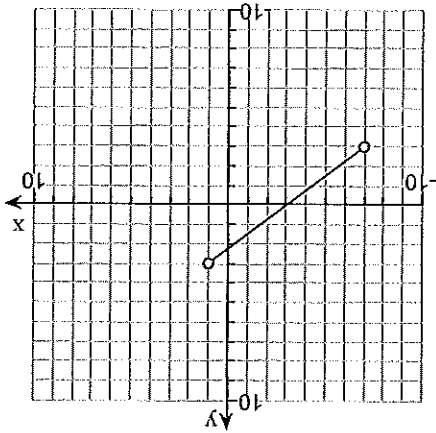
Use the graph to determine the domain and range of the function.

Choose the correct domain.

- ☐ A. $(-\infty, \infty)$
☐ B. $(-3, 3)$
☐ C. $(-7, 1)$
☐ D. $(-10, 10)$

Choose the correct range.

- ☐ A. $(-7, 1)$
☐ B. $(-\infty, \infty)$
☐ C. $(-10, 10)$
☐ D. $(-3, 3)$



21.

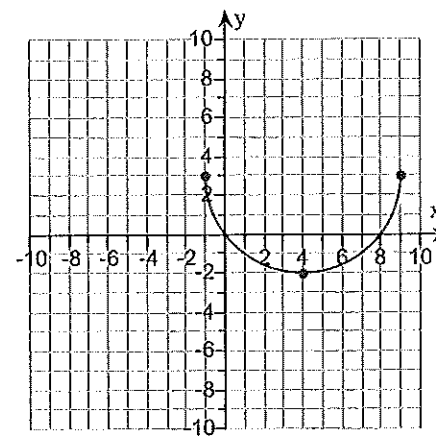
Use the graph to determine the domain and range of the function.

What is the domain of the function?

(Simplify your answer. Type your answer in interval notation.)

What is the range of the function?

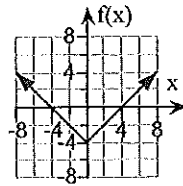
(Simplify your answer. Type your answer in interval notation.)



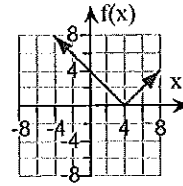
22.

Graph the function $f(x) = |x| + 4$ and state its domain and range.

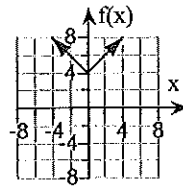
☐ A.



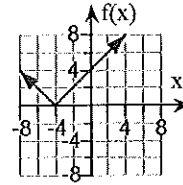
☐ B.



☐ C.



☐ D.



The domain of f is (,).

The range of f is [,).

23.

Sketch the graph of the linear function, then give its domain and range.

$$f(x) = 3x + 1$$

Use the graphing tool on the right to graph the function.



What is the domain?

☐ A. $[-\infty, \infty)$

☐ C. $(-\infty, \infty)$

☐ D. $[-10, 10]$

What is the range?

☐ A. $[0, \infty)$

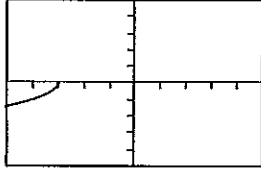
☐ C. $[-\infty, \infty]$

☐ D. $[-29, 31]$

24.

Graph the function using a $[-5, 5, -5, 5]$ window and use the graph to estimate the domain and range.

$$f(x) = \sqrt{x - 3}$$



Choose the domain of the function.

☐ A. $\{x | x \geq -3\}$

☐ C. $\{x | x > 3\}$

Which of the following is the range of the function?

☐ A. $\{y | y > 3\}$

☐ B. $\{y | y \geq 0\}$

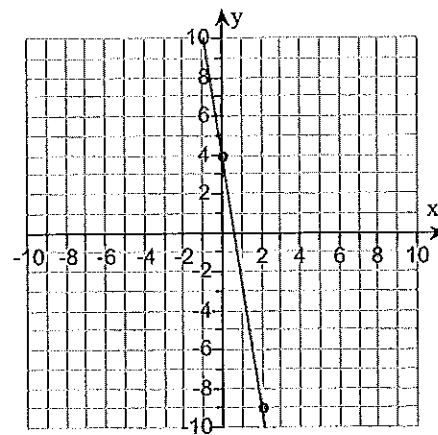
☐ D. $\{y | y \geq -3\}$

25.

Find the slope of the line.

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☐ A. The slope of the line is $m = \boxed{}$.
(Simplify your answer. Type an integer or fraction.)
- ☐ B. The slope is undefined.



26.

Find the slope, if it exists, of the line containing the pair of points.

 $(-18, -6)$ and $(-20, -8)$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☐ A. The slope is $\boxed{}$. (Type an integer or a simplified fraction.)
- ☐ B. The slope is undefined.

27.

Find the slope of the line containing the points $(3, -1)$ and $(3, -5)$.

Select the correct choice below and fill in any answer boxes within your choice.

- ☐ A. The slope of the line is $m = \boxed{}$. (Simplify your answer. Type an integer or a fraction.)
- ☐ B. The slope is undefined.

28.

Find the slope, if it exists, of the line containing the pair of points $(8, 6)$ and $(-5, 6)$.

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☐ A. The slope of the line is $\boxed{}$. (Type an integer or a simplified fraction.)
- ☐ B. The slope is undefined.

29. Find the slope of the line containing the given points.

$f(4) = 5$ and $f(7) = -3$

Select the correct choice below and fill in any answer boxes within your choice.

- ☐ A. The slope is .
- ☐ B. The slope is undefined.

Find the slope, if it exists.

$x = -2$

Select the correct choice below and fill in any answer boxes within your choice.

- ☐ A. The slope of the line is $m = \text{input}$.
- (Type an integer or a simplified fraction.)
- ☐ B. The slope is undefined.

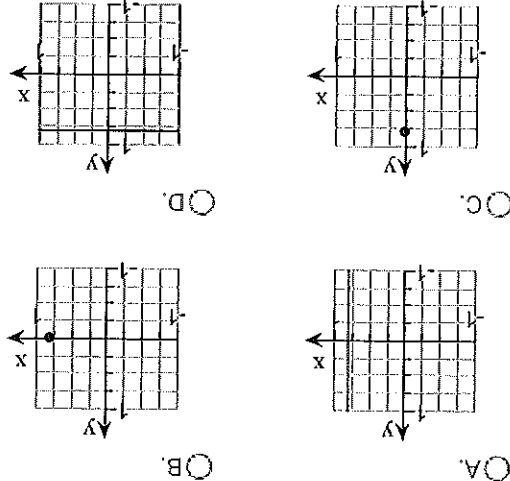
31.

Find the slope of the following line, and sketch the graph.

$y = \frac{4}{5}x$

Select the correct choice below and fill in any answer boxes within your choice.

- ☐ A. The slope is .
- ☐ B. The slope is undefined.
- Choose the correct graph.



32.

The number of crimes that occurred in a certain city per 1000 people had decreased from 46.7 in 1920 to 45.3 in 1955. Find the average rate of change in the number of crimes per 1000 people that occurred from 1920 to 1955.

The average rate of change was

years.
crimes per 1000 people.
years per thousands of people.
years per crimes per 1000 people.
thousands of people per year.
crimes per 1000 people per year.
years per city.
cities.
cities per year.
thousands of people.

(Round to the nearest hundredth as needed.)

