

Section 2.2 WS

Name KEY

Determine whether the equation defines y as a function of x.

1. $2x+3y=7$

Function

2. $5x+y=8$

Function

3. $-x^2+y^2=2$

Not a Function

4. $x^2-2y=2$

Function

Evaluate each function.

5. Given $f(x)=3x-1$, find

a. $f(2)$

$f(2)=5$

b. $f(-1)$

$f(-1)=-4$

c. $f(0)$

$f(0)=-1$

d. $f\left(\frac{2}{3}\right)$

$f\left(\frac{2}{3}\right)=1$

e. $f(k)$

$f(k)=3k-1$

f. $f(k+2)$

$f(k+2)=3k+5$

6. Given $g(x)=2x^2+3$, find

a. $g(3)$

$g(3)=21$

b. $g(-1)$

$g(-1)=5$

c. $g(0)$

$g(0)=3$

d. $g\left(\frac{1}{2}\right)$

$g\left(\frac{1}{2}\right)=\frac{7}{2}$

e. $g(c)$

$g(c)=2c^2+3$

f. $g(c+5)$

$g(c+5)=2c^2+20c+53$

Determine the domain of the function represented by the given equation.

7. $f(x)=3x-4$

$(-\infty, \infty)$

or

\mathbb{R}

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

$(-\infty, \infty)$

or

\mathbb{R}

9. $f(x)=\frac{4}{x+2}$

$\{x \mid x \neq -2\}$

or

$(-\infty, -2) \cup (-2, \infty)$

10. $f(x)=\sqrt{7+x}$

$7+x \geq 0$

$x \geq -7$

$\{x \mid x \geq -7\}$

or

$[-7, \infty)$

11. $f(x)=\sqrt{9-x^2}$

$9-x^2 \geq 0$

$-x^2 \geq -9$

$\sqrt{x^2} \leq \sqrt{9}$

$x = \pm 3$

3-x	+		+		-
3+x	-		+		+

	-	3	+	3	-

$[-3, 3]$					

Find the value or values of a in the domain of f for which $f(a)$ equals the given number.

12. $f(x) = 3x - 2, f(a) = 10$

$$3x - 2 = 10$$

$$3x = 12$$

$$x = 4$$

$$\boxed{a = 4}$$

13. $f(x) = x^2 + 2x - 2, f(a) = 1$

$$x^2 + 2x - 2 = 1$$

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

$$\hat{3-1}$$

$$x = -3, 1$$

$$\boxed{a = -3, 1}$$

14. $f(x) = |x|, f(a) = 4$

$$|x| = 4$$

$$x = \pm 4$$

$$\boxed{a = \pm 4}$$

15. $f(x) = x^2 + 2, f(a) = 1$

$$x^2 + 2 = 1$$

$$-2 - 2$$

$$\sqrt{x^2} = \sqrt{-1}$$

$$x = \pm i$$

$\boxed{\text{No Real Values of } a}$

Find the zeros of f .

16. $f(x) = 3x - 6$

$$3x - 6 = 0$$

$$3x = 6$$

$$\boxed{x = 2}$$

17. $f(x) = 5x + 2$

$$5x + 2 = 0$$

$$5x = -2$$

$$\boxed{x = -\frac{2}{5}}$$

18. $f(x) = x^2 - 4$

$$x^2 - 4 = 0$$

$$\sqrt{x^2} = \sqrt{4}$$

$$\boxed{x = \pm 2}$$

19. $f(x) = x^2 - 5x - 24$

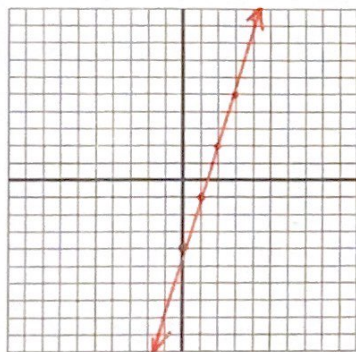
$$x^2 - 5x - 24 = 0$$

$$\hat{-8 \quad 3}$$

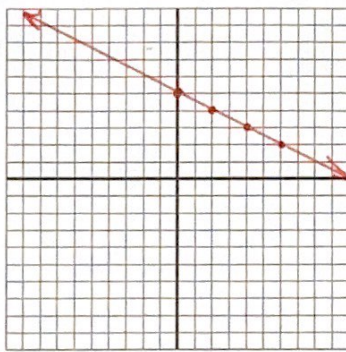
$$\boxed{x = -3, 8}$$

Graph each function.

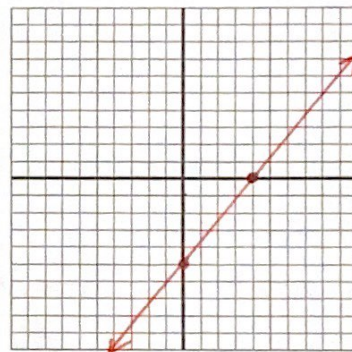
20. $f(x) = 3x - 4$



21. $h(x) = -\frac{1}{2}x + 5$



22. $5x - 4y = 20$



Find the equation that satisfies the given conditions. Write the equation in slope-intercept form.

23. Through $(1, -1)$, slope 5

$$y + 1 = 5(x - 1)$$

$$y + 1 = 5x - 5$$

$$\boxed{y = 5x - 6}$$

24. Through $(8, -2)$, slope $-\frac{3}{4}$

$$y + 2 = -\frac{3}{4}(x - 8)$$

$$y + 2 = -\frac{3}{4}x + 6$$

$$\boxed{y = -\frac{3}{4}x + 4}$$

25. Through $(-3, -7)$ and $(6, -1)$

$$m = \frac{-1 + 7}{6 + 3} = \frac{6}{9} = \frac{2}{3}$$

$$y + 1 = \frac{2}{3}(x - 6)$$

$$y + 1 = \frac{2}{3}x - 4$$

$$\boxed{y = \frac{2}{3}x - 5}$$