

U N I T 1

Simplify each expression.

DISTRIBUTIVE PROPERTY

$$(3g - 5) + (2g + 3h - 5)$$

$$3g - 5 + 2g + 3h - 5$$

$$\boxed{5g + 3h - 10}$$

$$x + y - 1(3x - y)$$

$$x + y - 3x + y$$

$$\boxed{-2x + 2y}$$

$$1(-4m - 2n) - 1(-5m + 6n)$$

$$-4m - 2n + 5m - 6n$$

$$\boxed{m - 8n}$$

$$2x + 5 + (8x - 9)$$

$$2x + 5 + 8x - 9$$

$$\boxed{10x - 4}$$

$$5(b + c) - 4(3b - 2c + 1)$$

$$5b + 5c - 12b + 8c - 4$$

$$\boxed{b + 13c - 4}$$

$$8 - 10(2 - 3f)$$

$$8 - 20 + 30f$$

$$\boxed{30f - 12}$$

Solve each equation.

$$-8 - 3k = 43$$

$$+8 \quad +8$$

$$\frac{-3k}{-3} = \frac{51}{-3}$$

$$\boxed{k = -\frac{51}{3}}$$

$$20 = -2(-6 + m)$$

$$20 = 12 - 2m$$

$$-12 \quad -12$$

$$\frac{8}{-2} = \frac{-2m}{-2}$$

$$\boxed{m = -4}$$

$$-3 + \frac{a}{-2} = -8$$

$$+3 \quad +3$$

$$-2 \cdot \frac{1}{-2} a = -5 \cdot -2$$

$$\boxed{a = 10}$$

$$-6(4f + 5) - 5f = 144$$

$$-24f - 30 - 5f = 144$$

$$-29f - 30 = 144$$

$$+30 \quad +30$$

$$-29f = 174$$

$$\frac{-29f}{-29} = \frac{174}{-29}$$

$$\boxed{f = -6}$$

$$-3 + w = -(4w - 2) - 5$$

$$-3 + w = -4w + 2 - 5$$

$$-2 + 5 - w \quad -w \quad -2 + 5$$

$$\frac{-5w}{-5} = \frac{0}{-5}$$

$$\boxed{w = 0}$$

$$-(2p + 8) = 4(1 - 2p)$$

$$-2p - 8 = 4 - 8p$$

$$+8p + 8 \quad +8 + 8p$$

$$\frac{6p}{6} = \frac{12}{6}$$

$$\boxed{p = 2}$$

$$8k + 6(7 - 5k) = -30 + 2k$$

$$8k + 42 - 30k = -30 + 2k$$

$$-2k \quad -2k$$

$$-24k + 42 = -30$$

$$-42 \quad -42$$

$$\frac{-24k}{-24} = \frac{-72}{-24}$$

$$\boxed{k = 3}$$

$$\frac{g}{4} + 6 = -1$$

$$-6 \quad -6$$

$$4 \cdot \frac{g}{4} = -7 \cdot 4$$

$$\boxed{g = -28}$$

$$7a - 1 = 104$$

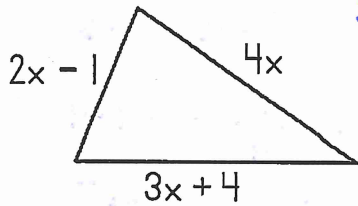
$$+1 \quad +1$$

$$\frac{7a}{7} = \frac{105}{7}$$

$$\boxed{a = \frac{105}{7}}$$



Find the length of each side of the figure if the perimeter is 57 cm.



$$\underline{2x-1} + \underline{4x} + \underline{3x+4} = 57 \text{ cm}$$

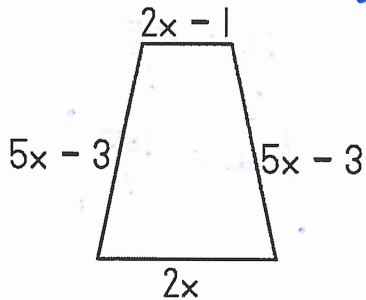
$$9x + 3 = 57 \text{ cm}$$

$$\quad \quad -3 \quad \quad -3$$

$$\frac{9x}{9} = \frac{54 \text{ cm}}{9}$$

$$x = 6 \text{ cm}$$

Find the length of each side of the figure if the perimeter is 35 inches.



$$\underline{2x-1} + \underline{5x-3} + \underline{5x-3} + \underline{2x} = 35 \text{ in}$$

$$14x - 7 = 35 \text{ in}$$

$$\quad \quad +7 \quad \quad +7$$

$$\frac{14x}{14} = \frac{42}{14}$$

$$x = 3 \text{ cm}$$

Classify each of the following numbers as:

(choose all that apply)

a) real b) rational c) irrational

d) integers e) whole f) natural

$$-\sqrt{25} \rightarrow -5$$

ABD

$$3\pi$$

AC

$$\frac{3}{6} \rightarrow \frac{1}{2}$$

AB

$$1.\overline{32}$$

$$\frac{20}{4}$$

$$\sqrt{5}$$

$$\frac{\sqrt{16}}{2}$$

AB

ADEF

AC

ADEF

Answer the following questions based on each situation.

To reduce waste, The Green Café offers a reduced rate on coffee this month for anyone buying a Green mug. The mug costs \$2.95 and is filled with a rate of \$0.50 per refill. A refill without the Green mug costs \$0.85.

- * Write and solve an equation to determine the approximate break-even point for buying the mug and refills in comparison for paying for refills without purchasing the mug.

w/ Mug $f(c) = 0.50c + 2.95$

w/o Mug $f(c) = 0.85c$

$$\frac{0.50c + 2.95}{-0.5c} = \frac{0.85c}{-0.5c} \quad \frac{2.95}{0.35} = \frac{0.35c}{0.35} \quad c = 8.42$$

- * When is it more economical to purchase the mug with refills?

After 9 cups or more of coffee.

Your friend Charlie is going to publish a 500-page book. Thrifty Publishing has a one-time charge of \$8.00 for setup and charges \$0.05 per page of printing. Creative Creations charges \$0.03 per page of printing and a one-time setup fee of \$10.50.

- * Write an equation to determine how many pages can be printed at each company for the cost to be the same.

TP:

CC:

- * Which company would be the best choice for Charlie to use to print his book? Provide justification for your response.

UNIT 2

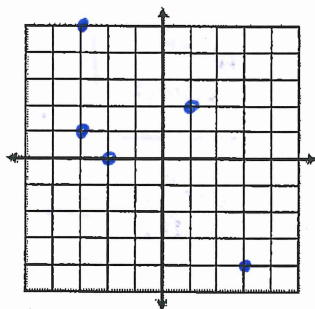
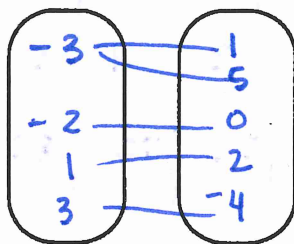
The set of all x-values is called the Domain.

The set of all y-values is called the Range.

Create a table, mapping, and graph of the relation.

$\{(-3, 1), (-2, 0), (1, 2), (3, -4), (-3, 5)\}$

x	y
-3	1
-2	0
1	2
3	-4
-3	5



Domain: $\{-3, -2, 1, 3\}$

Range: $\{-4, 0, 1, 2, 5\}$

Function: YES NO

Match the function to the table of values.

A.

x	-3	-1	2	6
y	-10	-8	-5	-1

B.

x	-1	2	3	5
y	4	-5	-8	-14

C.

x	-3	0	3	9
y	2	4	6	10

D.

x	-2	2	4	6
y	1	3	4	5

$f(x) = \frac{2}{3}x + 4$

$f(x) = \frac{1}{2}x + 2$

$f(x) = x - 7$

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

C

D

A

B

Given the domain of $\{-2, -1, 0, 1, 2\}$, determine the range of the following function.

$f(x) = -4x - 5$

$f(-2) = -4(-2) - 5 = 8 - 5 = 3$

$f(-1) = -4(-1) - 5 = 4 - 5 = -1$

$f(0) = -4(0) - 5 = 0 - 5 = -5$

$f(1) = -4(1) - 5 = -4 - 5 = -9$

$f(2) = -4(2) - 5 = -8 - 5 = -13$

Range:

$\{3, -1, -5, -9, -13\}$

What is a possible ordered pair that would make this relation a function?

$\{(0, -2), (-3, -1), (5, 4), (x, y)\}$

(1, 2) answers will vary

What is a possible ordered pair that would make this relation NOT a function?

$\{(0, -2), (-3, -1), (5, 4), (x, y)\}$

$(0, -1)$ $(-3, -2)$ $(5, 5)$ *answers will vary*

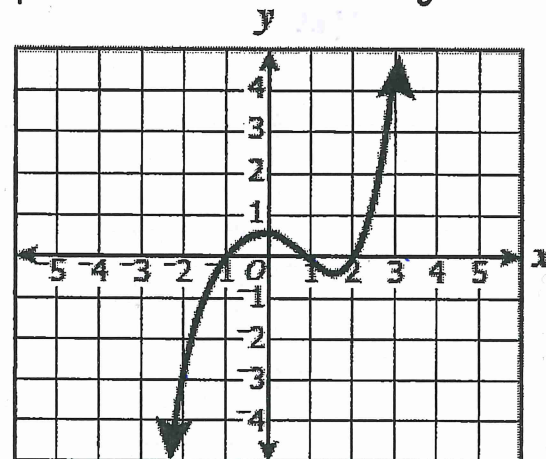
Given the following graph, find each of the following.

$f(1) = \underline{0}$

$f(x) = 4 \Rightarrow \underline{x = 3}$

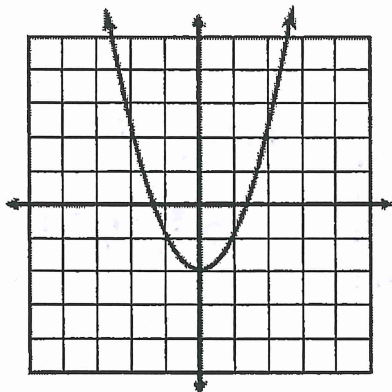
$f(-2) = \underline{-3}$

$f(x) = 0 \Rightarrow \underline{x = -1, 1}$

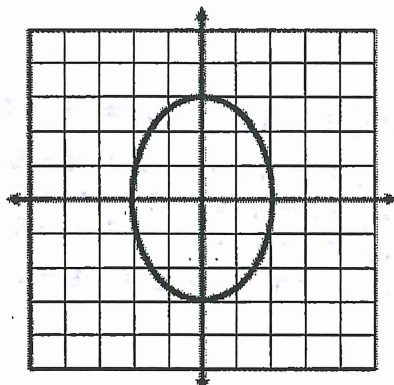


Use the vertical line test.

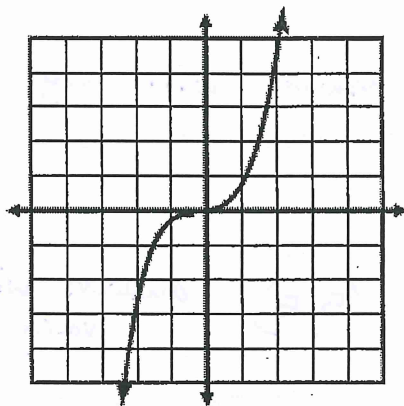
Determine if each of the following graphs represent a function.
Write YES or NO.



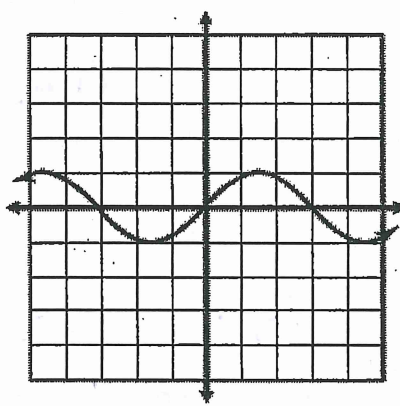
Yes



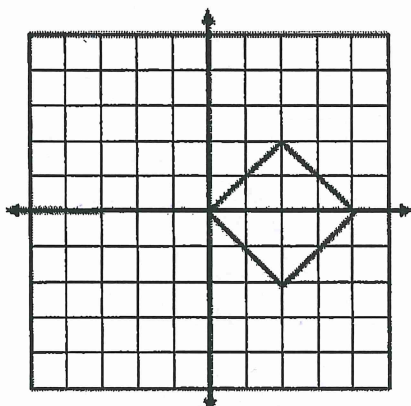
No



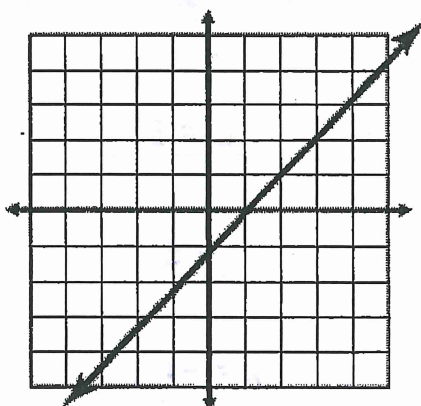
Yes



Yes



No



Yes

For which function(s) does $f(5) = 12$?

B and D

A. $f(x) = 3x - 8$
 $f(5) = 3(5) - 8 = 7$

C. $f(x) = x - 7$
 $f(5) = 5 - 7 = -2$

B. $f(x) = -x + 17$
 $f(5) = -5 + 17 = 12$

D. $f(x) = 3x - 3$
 $f(5) = 3(5) - 3 = 12$

A kennel charges \$15 per day to board dogs. Upon arrival, each dog must have a flea bath that costs \$12.

* Make a t-chart to show the cost of boarding a dog for 1, 2, 3, 4, and 5 days.

# of Days	1	2	3	4	5
Cost (\$)	27	42	57	72	87

* Based on the t-chart above, determine the domain and range.

Domain: $\{1, 2, 3, 4, 5\}$

Range: $\{27, 42, 57, 72, 87\}$

* Write a rule in function notation to represent the total cost for boarding a dog for n days.

$n = \# \text{ of days}$ $c = \text{cost}$

$c(n) = 15n + 12$

* Find $f(10)$ and explain what it means.

$c(10) = 15(10) + 12 = \$162$

It would cost \$162 to board a dog 10 days

* Find x if $f(x) = 87$ and explain what it means.

$x = 5$

5 days would cost you \$87.

We were asked how many days (x) it would take for an \$87 charge

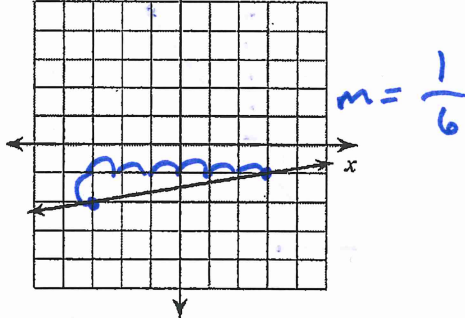
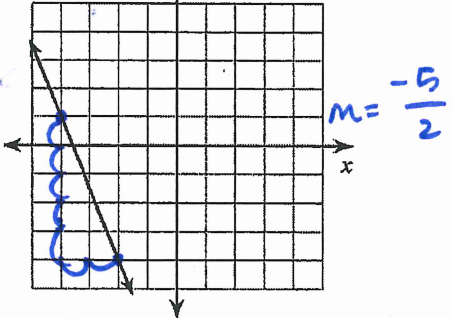
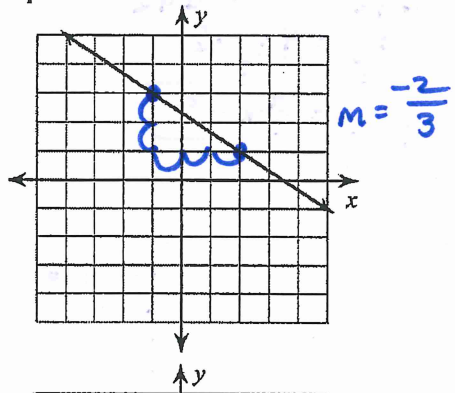
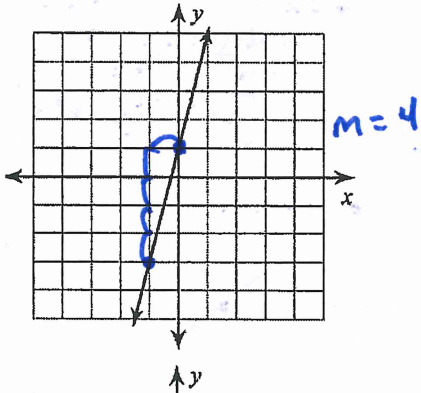
* Is this function continuous or discrete?

Allison Barkley



UNIT 3

Determine the slope of each line.



Find the slope of the line that passes through each pair of points.

$(0, -3)$ $(2, 1)$ **SIMPLIFY!!!** $(12, 2)$ $(18, -2)$

$$m = \frac{1 - (-3)}{2 - 0} = \frac{4}{2} = \boxed{2}$$

$$m = \frac{-2 - 2}{18 - 12} = \frac{-4}{6}$$

$$m = \boxed{-\frac{2}{3}}$$

$(-2, -3)$ $(-2, -5)$

$(1, 8)$ $(7, 8)$

$$m = \frac{-5 - (-3)}{-2 - (-2)} = \frac{-2}{0}$$

Undefined

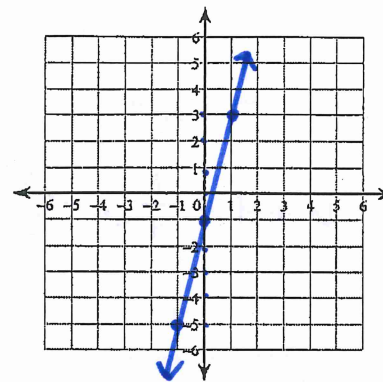
$$m = \frac{8 - 8}{7 - 1} = \frac{0}{6} = \boxed{0}$$

Simplify!

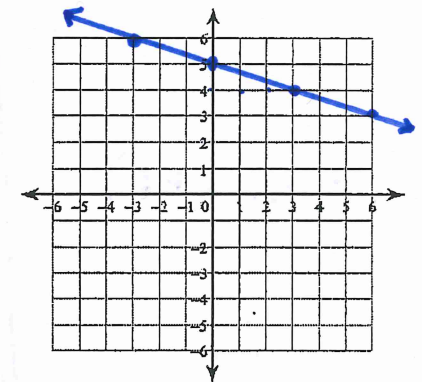
$$y = mx + b$$

$b \rightarrow y\text{-int}$
 $m \rightarrow \text{slope}$

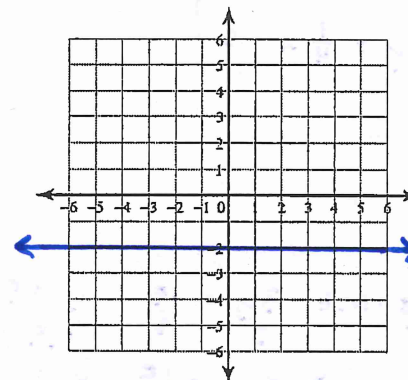
Given the equation of the line, graph each line.



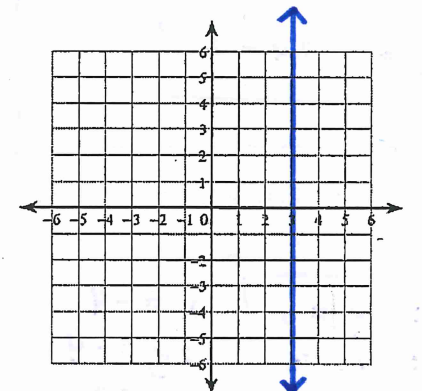
$$y = 4x - 1$$



$$y = -\frac{1}{3}x + 5$$



HOY! $y = -2$



VUX! $x = 3$

Write an equation in slope-intercept form of each line given the slope and y-intercept.

slope: -2 $(0, 4)$

$$\boxed{y = -2x + 4}$$

slope: $\frac{3}{4}$ $(0, -5)$

$$\boxed{y = \frac{3}{4}x - 5}$$

$$y - y_1 = m(x - x_1)$$

Given the slope and a point, write an equation in point-slope form.

$$m = -2 \quad (-3, 4)$$

$$y - 4 = -2(x + 3)$$

$$m = \frac{1}{4} \quad (8, -4)$$

$$y + 4 = \frac{1}{4}(x - 8)$$

Using the equations in point-slope form (from above), write an equation in slope-intercept form for each.

$$y - 4 = -2(x + 3) \leftarrow \text{Distribute!} \rightarrow y + 4 = \frac{1}{4}(x - 8)$$

$$y - 4 = -2x - 6$$

$$+4 \quad +4$$

$$y = -2x - 2$$

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

$$-4 \quad -4$$

$$y = \frac{1}{4}x - 6$$

Find the x- and y-intercepts for each equation and graph each line.

$$x - 2y = -4$$

$$\text{x-int: } y = 0$$

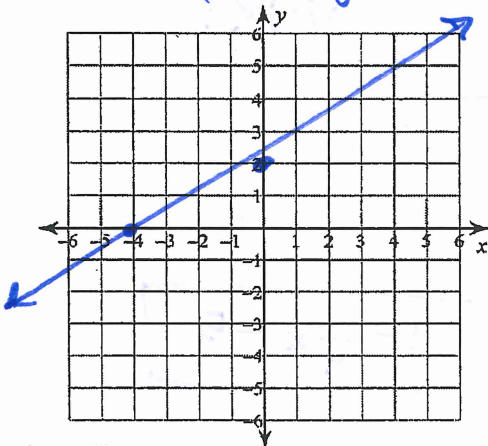
$$\text{y-int: } x = 0$$

$$x = -4$$

$$-2y = -4$$

$$y = 2$$

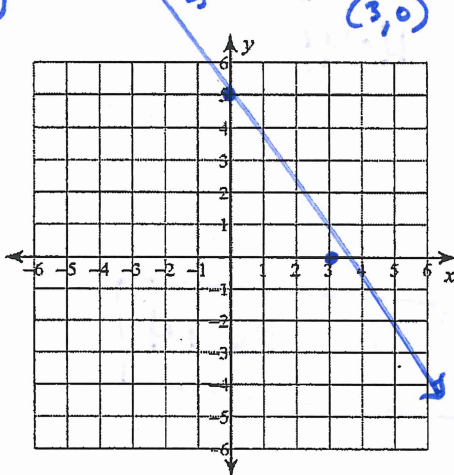
$$\text{x-int} = (-4, 0) \quad \text{y-int} = (0, 2)$$



$$5x + 3y = 15$$

$$y\text{-int: } \frac{3y}{3} = \frac{15}{3} \quad y = 5 \quad (0, 5)$$

$$\text{x-int: } \frac{5x}{5} = \frac{15}{5} \quad x = 3 \quad (3, 0)$$



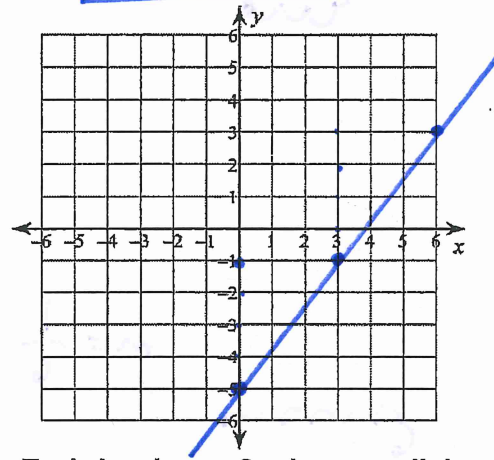
Convert each equation to slope-intercept form and graph each line.

$$-4x + 3y = -15$$

$$+4x \quad +4x$$

$$\frac{3y}{3} = \frac{4x - 15}{3}$$

$$y = \frac{4}{3}x - 5$$

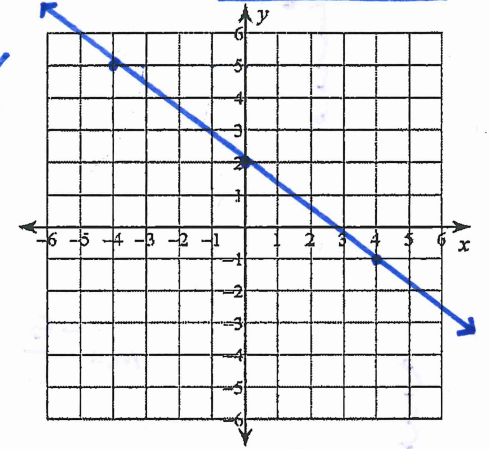


$$-3x - 4y = -8$$

$$+3x \quad +3x$$

$$\frac{-4y}{-4} = \frac{3x - 8}{-4}$$

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



Find the slope of a line parallel and perpendicular to each given line.

$$y = 4x + 1$$

$$\text{parallel: } 4$$

$$\text{perpendicular: } -\frac{1}{4}$$

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

$$\text{parallel: } -\frac{3}{2}$$

$$\text{perpendicular: } \frac{2}{3}$$

$$y = -2x - 7$$

$$\text{parallel: } -2$$

$$\text{perpendicular: } \frac{1}{2}$$

Identify the equation of the line that is parallel to $y = \frac{1}{3}x - 4$.

$$y = -\frac{1}{3}x + 5$$

$$y = -3x - 7$$

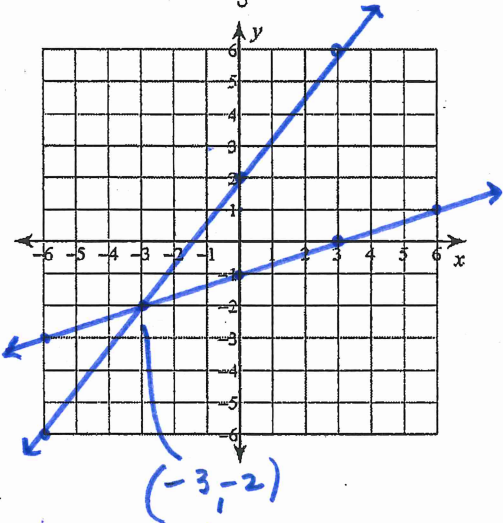
$$y = 3x + 2$$

$$y = \frac{1}{3}x - 6$$

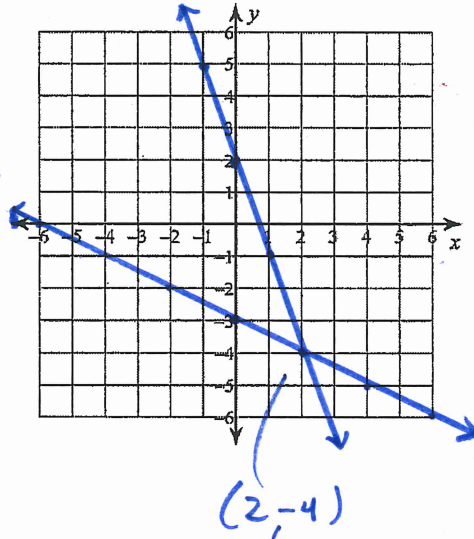
U N I T 4

Solve each system of equations by graphing.

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



$$\begin{cases} y = -3x + 2 \\ y = -\frac{1}{2}x - 3 \end{cases}$$



Solve each system of equations by graphing.
Make sure each equation is in slope-intercept form.

$$\begin{cases} -3x + y = -5 \\ y = -x + 3 \end{cases}$$

Handwritten in blue: $y = 3x - 5$

$$\begin{cases} 2x + y = 2 \\ y = -\frac{1}{3}x - 3 \end{cases}$$

Handwritten in blue: $y = -2x + 2$

