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Period 2 - Pre-Algebra

Landon V. Mathew Auralia Landon H.

De'Marion Connor Y. Emily F. Andrew


Rylee Lilly James Haiden

Mercy Rhiannon Regan David

Riley Emma Lily Emily J.

Leah Tyler K. Jacob Raevyn

Azalea
Hailey
Tyler G.
Bailey

 Tatyana Connor F. Kathryn

Hope

Mrs.
Fowley

1. Go through homework
2. Review Chapter 8
3. Homework: Study for Test

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Period 7 - Pre-Algebra

Ava Gianni Trey Isaac

Bailee Nate 

Martin Matthew Colton John

Tietje Jacob Garrett Bryan

Alexia Elijah Ethan Destiny

Max Cecilia Audrey Kayden



Mrs.
Fowley

1. Go through homework
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22. Vacation Rentals A business rents in-line skates and bicycles to tourists on vacation. A pair of skates rents for \$15 per day. A bicycle rents for \$20 per day. On a certain day, the owner of the business has 25 rentals and takes in \$450. Using the verbal model below, write and solve a system of equations to find the number of each item rented.

Pairs of skates	+	Number of bicycles	=	Total rentals
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Rent per pair of skates	•	Pairs of skates	+	Rent per bicycle	•	Number of bicycles	=	Total income
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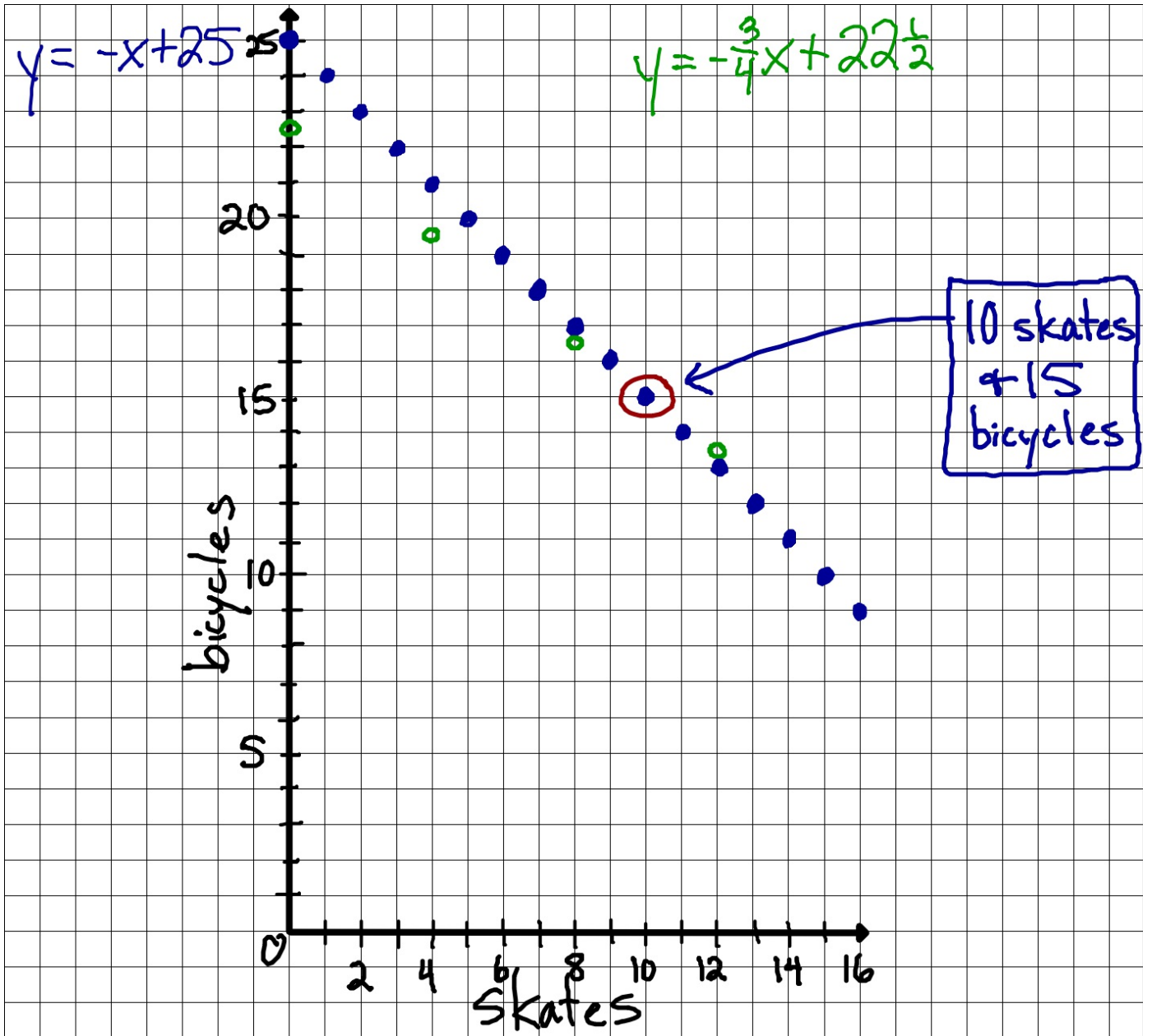
$$x + y = 25$$

$$y = -x + 25$$

$$15x + 20y = 450$$

$$\begin{array}{r} -15x \\ \hline 20y = -15x + 450 \\ \hline 20 \end{array}$$

$$y = -\frac{3}{4}x + 22\frac{1}{2}$$



$$x=10 + y=15?$$

$$y = -x + 25$$

$$15 = -(10) + 25?$$

$$15 = 15 *$$

$$y = -\frac{3}{4}x + 22\frac{1}{2}$$

$$15 = -\frac{3}{4}(10) + 22\frac{1}{2}?$$

$$15 = -\frac{30}{4} + 22\frac{1}{2}?$$

$$15 = -7\frac{1}{2} + 22\frac{1}{2}?$$

$$15 = 15 *$$

10 skates + 15 bicycles

8.8 Exercises #9, 16, 17, & 27

Tell whether the ordered pair is a solution of the linear system.

9. $(-24, -10)$; **yes**
 $x - 4y = 16$
 $-2x + 6y = -12$

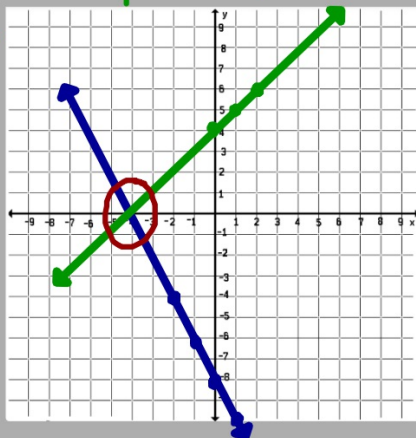
$-24 - 4(-10) = 16?$
 $-24 - (-40) = 16?$
 $16 = 16$ ✓
 $-2(-24) + 6(-10) = -12?$
 $48 + -60 = -12?$
 $-12 = -12$ ✓

Solve the linear system by graphing.

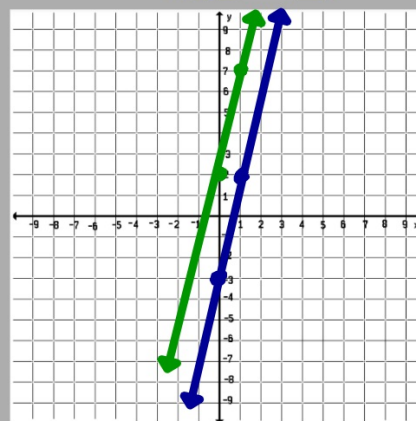
16. $2x + y = -8$ **$(-4, 0)$**
 $-x + y = 4$

$$\begin{array}{r} 2x + y = -8 \\ -2x \quad -2x \\ \hline y = -2x - 8 \end{array}$$

$$\begin{array}{r} -x + y = 4 \\ +x \quad +x \\ \hline y = x + 4 \end{array}$$



17. $y = 5x - 3$
 $y = 5x + 2$
no solution



Visual Thinking In Exercises 26–28, find values of m and b for which the system below has the given number of solutions. Justify your answers.

$$y = 3x - 2$$
$$y = mx + b$$

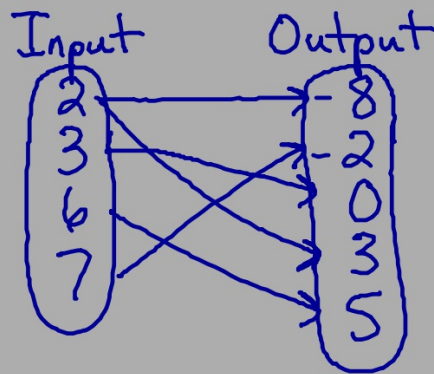
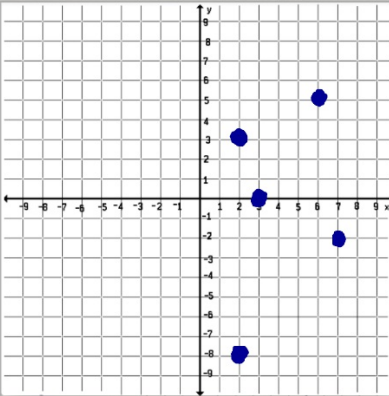
27. None

27. *Sample answer:* $m = 3$, $b = 5$; for there to be no solution, the lines should be parallel, which means that they must have the same slope but not be the same line.

$b = \text{NOT } -2$

✓ Represent the relation as a graph and as a mapping diagram.

6. $(7, -2), (6, 5), (2, 3), (2, -8), (3, 0)$ Function?



Not a function;
 - vertical line test on graph,
 - input(2) has 2 outputs (-8 + 3)

✓ Tell whether the ordered pair is a solution of the equation.

8. $14x + 2y = -22$; $(-2, -3)$

$$14(-2) + 2(-3) = 22? \\ -28 + (-6) = 22? \\ -34 \neq 22 \quad \boxed{\text{No}}$$

✓ Find the intercepts of the equation's graph.

10. $y = 2x - 10$

x-int: $y = 0$

$(5, 0)$

$$\begin{array}{r|l} 0 = 2x - 10 & \\ +10 & +10 \\ \hline 10 = 2x & \\ \frac{10}{2} = \frac{2x}{2} & \\ 5 = x & \end{array}$$

y-int: $x = 0$

$(0, -10)$

$y = 2(0) - 10$
 $y = -10$

$(5, -10)$



✓ Find the slope of the line through the given points.

12. $(4, -7), (-2, -10)$

$$\frac{-10 - (-7)}{-2 - 4} = \frac{-3}{-6} = \boxed{\frac{1}{2}}$$

14. $(3, 4), (7, -12)$

$$\frac{-12 - 4}{7 - 3} = \frac{-16}{4} = \boxed{-4}$$

✓ Identify the slope and y-intercept of the line with the given equation.

16. $2x + 3y = -6$

$$\begin{array}{r|l} -2x & -2x \\ \hline 3y & -2x - 6 \\ \hline & \frac{-2x - 6}{3} \\ & y = -\frac{2}{3}x - 2 \end{array}$$

$$\begin{aligned} \text{slope}(m) &= -\frac{2}{3} \\ \text{y-int}(b) &= -2 \end{aligned}$$

x	y
-2	y
0	-2
3	-4

} $-\frac{2}{3}$

✓ Write an equation of the line that is parallel to the given line and passes through the given point. (same slope)

18. $y = 3x - 8; (0, 2)$

\bar{m} \bar{b}

$y = 3x + 2$

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

20. $y = -9x + 1; (0, 5)$

\bar{m} \bar{b}

$y = -9x + 5$

$$\perp = y = \frac{1}{9}x + 5$$

⊥
opp. of reciprocal

✓ Let $g(x) = -2x + 6$. Find the indicated value.

22. x when $g(x) = 14$

$$\begin{array}{r} 14 = -2x + 6 \\ -6 \quad | \quad -6 \\ \hline 8 = -2x \\ -2 \quad | \quad -2 \end{array}$$

$$x = -4$$

23. $g(10)$
 $x = 10$

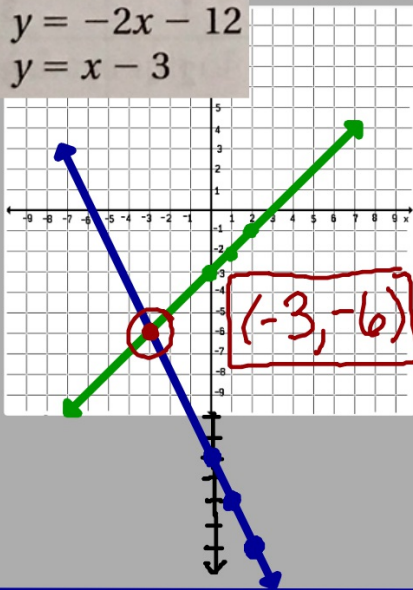
$g(x)$ when $x = 10$

$$g(10) = -2(10) + 6 = -14$$

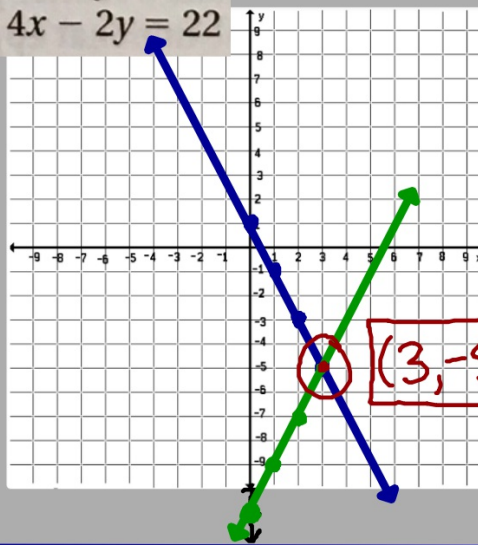
x	y
0	1
2	-3

✓ Solve the linear system by graphing.

24. $y = -2x - 12$
 $y = x - 3$



26. $2x + y = 1$
 $4x - 2y = 22$



$$\begin{array}{r} 2x + y = 1 \\ -2x \quad | \quad -2x \\ \hline \rightarrow y = -2x + 1 \end{array}$$

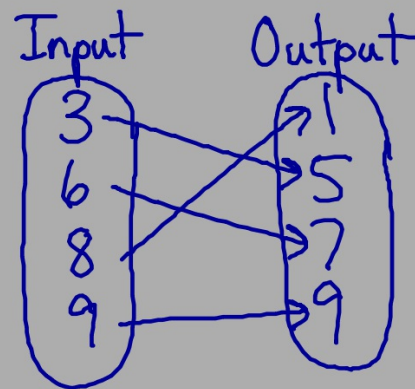
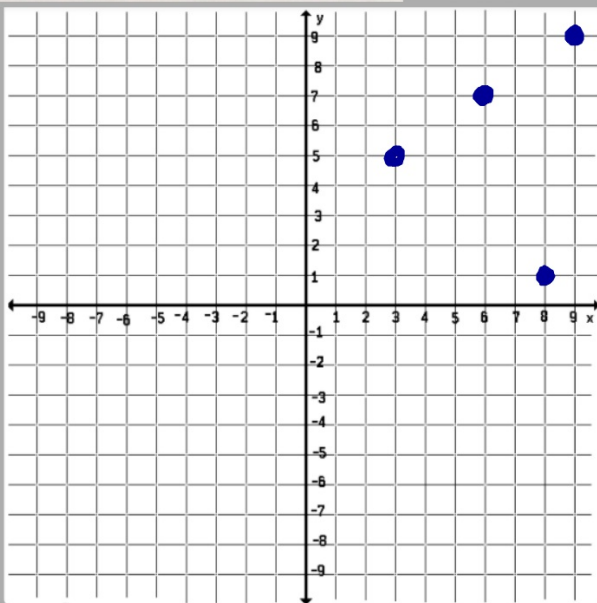
$$\begin{array}{r} 4x - 2y = 22 \\ -4x \quad | \quad -4x \\ \hline -2y = -4x + 22 \\ -2 \quad | \quad -2 \\ \hline \rightarrow y = 2x - 11 \end{array}$$

Chapter 8 Review (Pg.446)

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Represent the relation as a graph and as a mapping diagram. Then tell whether the relation is a function. Explain your reasoning.

2. $(3, 5)$, $(6, 7)$, $(9, 9)$, $(8, 1)$



Yes; graph-vertical line test
mapping diagram - 1 output
for each input

Tell whether each ordered pair is a solution of the equation.

4. $y = -3x - 4$; $(-1, -1)$, $(0, -4)$, $(10, 34)$

$$-1 = -3(-1) - 4?$$

$$-1 = 3 - 4?$$

$$-1 = -1 \star$$

Yes

$$-4 = -3(0) - 4?$$

$$-4 = 0 - 4?$$

$$-4 = -4 \star$$

Yes

$$34 = -3(10) - 4?$$

$$34 = -30 - 4?$$

$$34 \neq -34$$

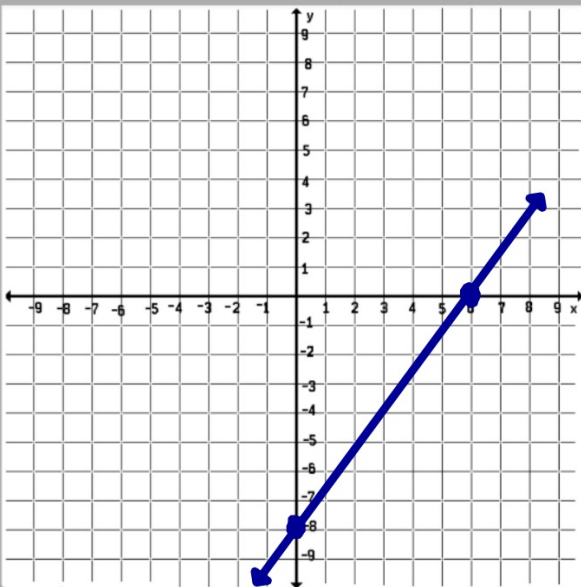
No

Find the intercepts of the equation's graph. Then graph the equation.

6. $4x - 3y = 24$

x-int: $y=0$ $4x - 3(0) = 24$
 $(6, 0)$ $4x = 24$
 $x = 6$

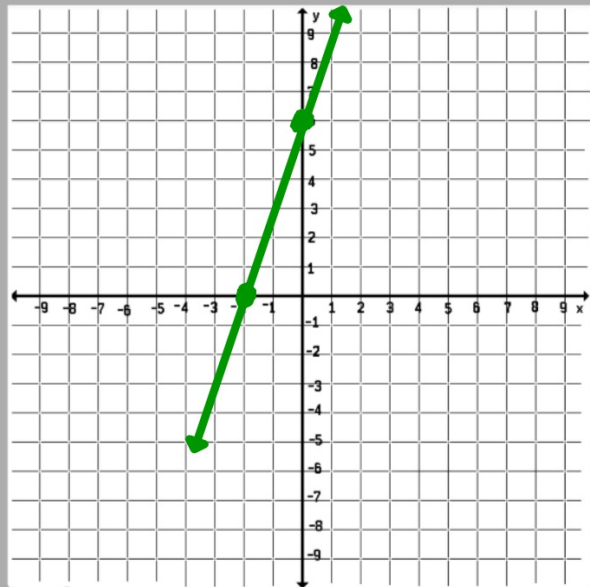
y-int: $x=0$ $4(0) - 3y = 24$
 $(0, -8)$ $-3y = 24$
 $y = -8$



8. $y = 3x + 6$

x-int: $y=0$ $0 = 3x + 6$
 $(-2, 0)$ $\frac{-6}{-3} = \frac{-6}{-3}$
 $-2 = x$

y-int: $x=0$ $y = 3(0) + 6$
 $(0, 6)$ $y = 6$



Find the slope of the line through the given points.

10. (4, 2), (0, 3)

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

12. (4, 7), (10, 7)

$$\frac{7-7}{10-4} = \frac{0}{6} = \boxed{0}$$

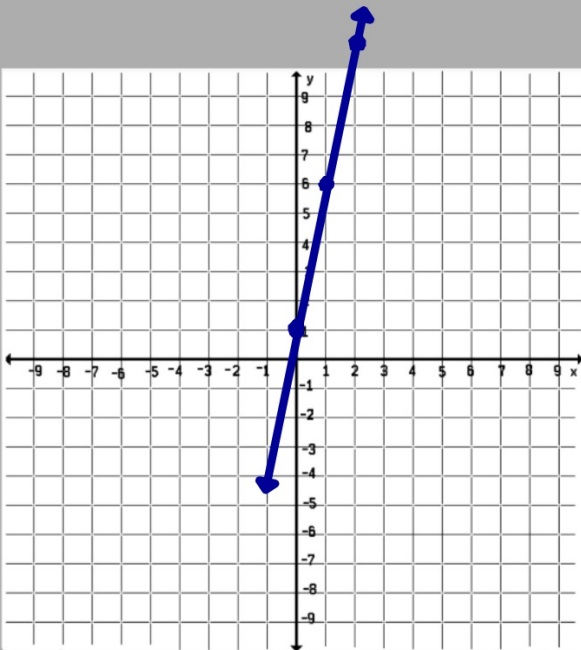
$$(7, 4)(7, 10)$$

$$\frac{10-4}{7-7} = \frac{6}{0} = \text{undefined}$$

Identify the slope and y-intercept of the line with the given equation.
Use the slope and y-intercept to graph the equation.

14. $y = 5x + 1$

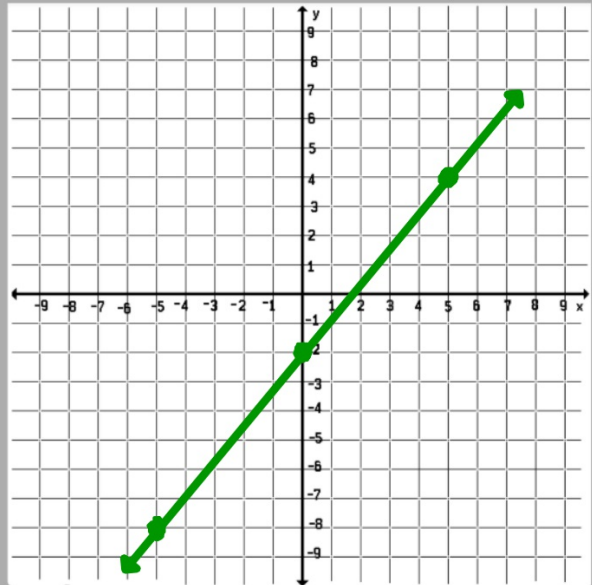
$m = 5$
 $b = 1$



16. $6x - 5y = 10$

$$\begin{array}{r|l} -6x & -6x \\ \hline -5y = -6x + 10 & \\ \hline \frac{-5y}{-5} = \frac{-6x + 10}{-5} & \\ y = \frac{6}{5}x - 2 & \end{array}$$

 $m = \frac{6}{5}$
 $b = -2$



Write a linear function that satisfies the given conditions.

18. $f(0) = 3, f(4) = 9$

$(0, 3)$ and $(4, 9)$
↑
 b

$$\frac{9-3}{4-0} = \frac{6}{4} = \frac{3}{2} = m$$

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

20. $h(-4) = -5, h(0) = 10$

$(-4, -5)$ and $(0, 10)$
↑
 b

$$\frac{10 - (-5)}{0 - (-4)} = \frac{15}{4} = m$$

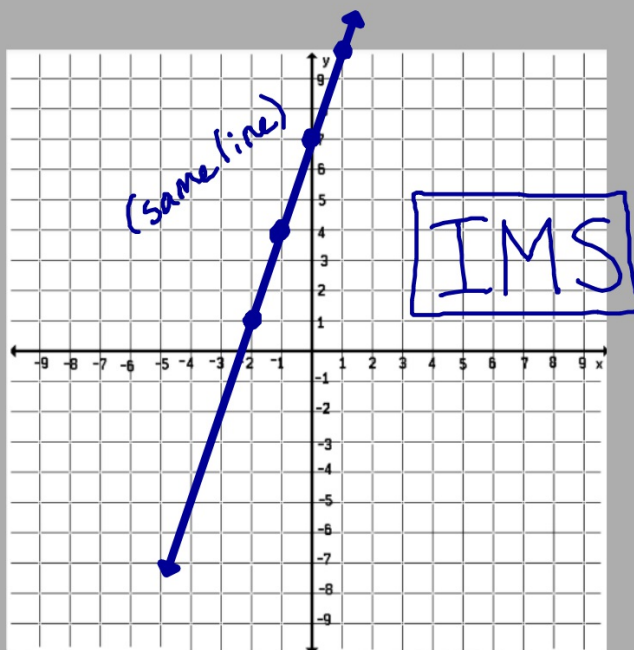
$$h(x) = \frac{15}{4}x + 10$$

Solve the linear system by graphing.

22. $3x - y = -7$
 $-3x + y = 7$

$$\begin{array}{r|l} 3x - y = -7 & -3x \\ -3x & -3x \\ \hline -y & -3x - 7 \\ -1 & -1 \\ \hline y & = 3x + 7 * \end{array}$$

$$\begin{array}{r|l} -3x + y = 7 & +3x \\ +3x & +3x \\ \hline y & = 3x + 7 * \end{array}$$



Study 8.1-8.8:

- comp. book notes and exercises
- odd-numbered exercises (answers in back)
- graded/corrected 8.1-8.4 Quiz
- today's chapter review