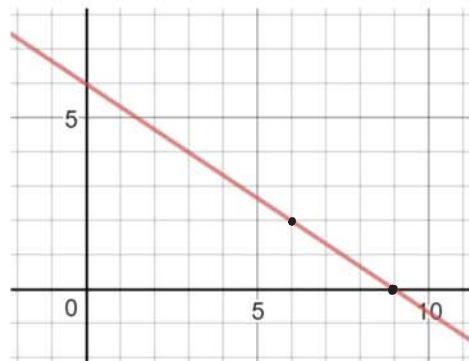


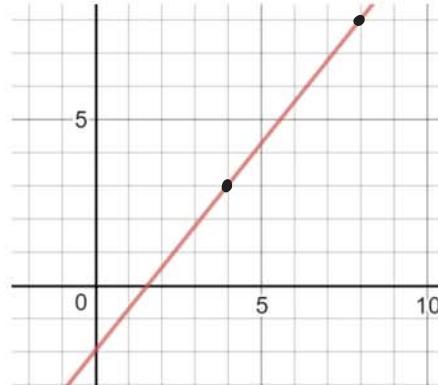
## Chapter 6 Final Review

1. Write the equation for the line, in slope – intercept form, for each graph.

a)



b)

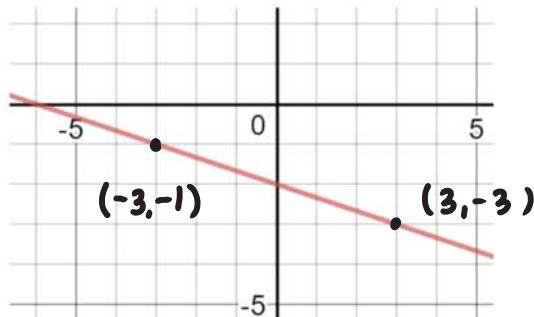


$$y = -\frac{2}{3}x + 6$$

$$y = \frac{5}{4}x - 2$$

2. Write the equation for the line, in slope – point form, for each graph.

a)



$$m = -\frac{1}{3}$$

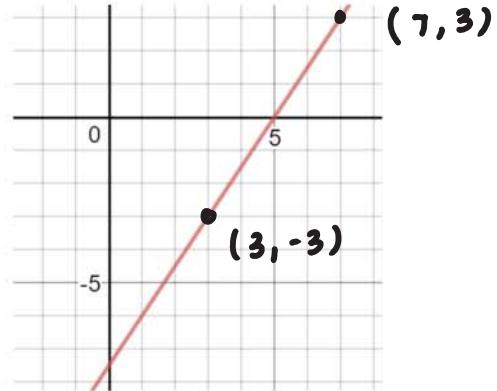
$$y - y_1 = m(x - x_1)$$

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

or

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

b)



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

$$y - 3 = \frac{3}{2}(x - 7)$$

or

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

3. Find the slope of a line that passes through the following points:

a)  $A(-4, 3)$  and  $B(2, -5)$

$$m = \frac{-5-3}{2-(-4)} = \frac{-8}{6} = \frac{4}{3}$$

b)  $C(2, -7)$  and  $D(-1, 5)$

$$m = \frac{5-(-7)}{-1-2} = \frac{12}{-3} = -4$$

c)  $E(-7, 18)$  and  $F(14, 6)$

$$m = \frac{6-18}{14-(-7)} = \frac{-12}{21} = \frac{-4}{7}$$

d)  $G(8, -4)$  and  $H(48, 1)$

$$m = \frac{1-(-4)}{48-8} = \frac{5}{40} = \frac{1}{8}$$

4. Write the equation for a line that passes through  $(5, -2)$  and is perpendicular to  $y = 3x + 5$ .

a) slope – point form

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

$$y - (-2) = \frac{1}{3}(x - 5)$$

$$y + 2 = -\frac{1}{3}(x - 5)$$

b) slope – intercept form

$$y + 2 = -\frac{1}{3}(x - 5)$$

$$y + 2 = -\frac{1}{3}x + \frac{5}{3}$$

$$y = -\frac{1}{3}x + \frac{5}{3} - \frac{2}{1} \cancel{\times 3}$$

$$y = -\frac{1}{3}x + \frac{5}{3} - \frac{6}{3}$$

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

5. Write the equation for a line that passes through  $(-4, 1)$  and  $(8, -8)$ . } use points to find "m" first

a) slope – point form

$$m = \frac{-8-1}{8-(-4)} = \frac{-9}{12} = -\frac{3}{4}$$

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

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

used  
 $(-4, 1)$

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

used  
 $(-8, 8)$

b) slope – intercept form

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

or

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

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

$$y + 8 = -\frac{3}{4}x + 6$$

-8 -8

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

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

same result!

6. Rewrite the following linear functions in general form.

a)  $y - 2 = -3(x + 5)$

$$y - 2 = -3x - 15$$

$$\begin{array}{r} +3x \\ \hline +15 \end{array}$$

$$3x + y + 13 = 0$$

c)  $3(y + 9) = \frac{1}{3}(x - 4)$

$$3(y + 9) = 3\left(\frac{1}{3}\right)(x - 4)$$

$$3y + 27 = x - 4$$

$$\begin{array}{r} -3y - 27 \\ \hline -3y - 27 \end{array}$$

$$0 = x - 3y - 31$$

b)  $y = 3x - 14$

$$\begin{array}{r} -y \\ \hline -y \end{array}$$

$$0 = 3x - y - 14$$

d)  $2\left(y = -\frac{5}{2}x + 17\right)$

$$2y = -5x + 34$$

$$\begin{array}{r} +5x \\ \hline +5x - 34 \\ -34 \end{array}$$

$$5x + 2y - 34 = 0$$

7. Find the  $x$  and  $y$  intercepts of the following linear functions.

a)  $4x - 2y - 10 = 0$

$x$ -int ( $y = 0$ )

$$4x - 2(0) - 10 = 0$$

$$\begin{array}{r} 4x - 10 = 0 \\ +10 \quad +10 \end{array}$$

$$\frac{4x}{4} = \frac{10}{4}$$

$$x = \frac{10}{4} = \frac{5}{2}$$

$y$ -int ( $x = 0$ )

$$4(0) - 2y - 10 = 0$$

$$\begin{array}{r} -2y - 10 = 0 \\ +10 \quad +10 \end{array}$$

$$\frac{-2y}{-2} = \frac{10}{-2}$$

$$y = -5$$

b)  $7x + 4y - 12 = 0$

$x$ -int.

$$7x + 4(0) - 12 = 0$$

$$\begin{array}{r} 7x - 12 = 0 \\ +12 \quad +12 \end{array}$$

$$\frac{7x}{7} = \frac{12}{7}$$

$$x = \frac{12}{7}$$

$y$ -int.

$$7(0) + 4y - 12 = 0$$

$$\begin{array}{r} 4y - 12 = 0 \\ +12 \quad +12 \end{array}$$

$$\frac{4y}{4} = \frac{12}{4}$$

$$y = 3$$

8. Determine the slope of a line with the following equation:

a)  $3x - 2y + 7 = 0$

rewrite in slope-intercept form

$$3x - 2y + 7 = 0$$

$$\begin{array}{r} -3x \quad -7 \quad -3x - 7 \end{array}$$

$$\begin{array}{r} -2y = -3x - 7 \\ -2 \quad -2 \quad -2 \end{array}$$

$$y = \frac{3}{2}x + \frac{7}{2}$$

So, the slope is  $\frac{3}{2}$

c)  $5x + 3y - 18 = 0$

$$5x + 3y - 18 = 0$$

$$\begin{array}{r} -5x \quad +18 \quad -5x + 18 \end{array}$$

$$\frac{3y}{3} = \frac{-5x}{3} + \frac{18}{3}$$

$$y = -\frac{5}{3}x + 6$$

So the slope is  $-\frac{5}{3}$

9. Graph the following linear functions.

a)  $y - 5 = -\frac{2}{3}(x + 3)$

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

$$+5 \quad +5$$

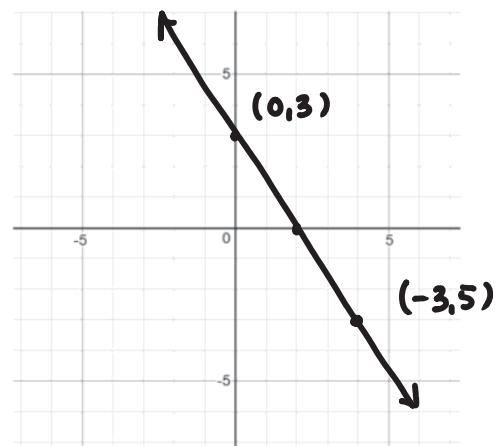
$$y = -\frac{2}{3}x + 3$$

rewrite in slope-intercept form

or

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

and point  $(-3, 5)$



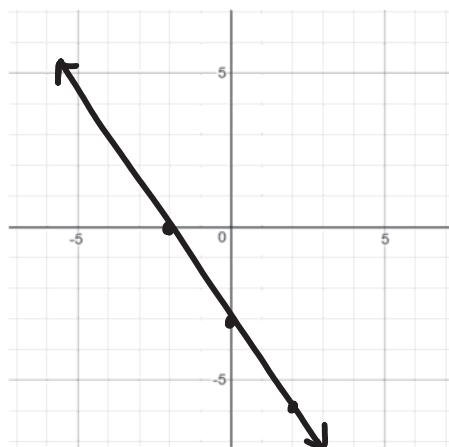
b)  $-2y - 6 = 3x$

$$+6 \quad +6$$

rewrite in slope-intercept form

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

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



c)  $4x - 8y + 24 = 0$

$$-4x \quad -24 \quad -4x - 24$$

rewrite in slope-intercept form

$$\frac{-8y = -4x - 24}{-8 \quad -8 \quad -8}$$

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

or

find x & y intercepts

x-int ( $y = 0$ )

$$4x - 8(0) + 24 = 0$$

$$4x + 24 = 0$$

$$-24 \quad -24$$

$$\frac{4x}{4} = \frac{-24}{4}$$

$$x = -6$$

y-int. ( $x = 0$ )

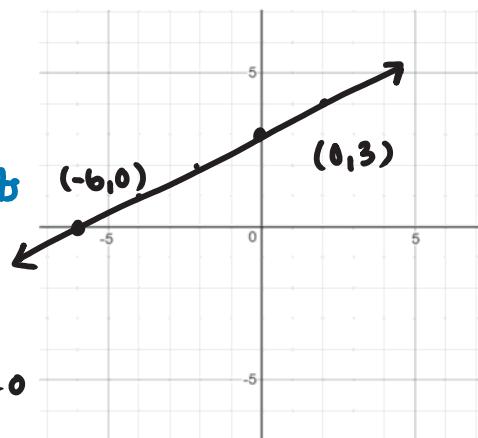
$$4(0) - 8y + 24 = 0$$

$$-8y + 24 = 0$$

$$-24 \quad -24$$

$$\frac{-8y}{-8} = \frac{-24}{-8}$$

$$y = 3$$



Additional Practice: p. 321 #3-6, 8, 9, 11, 13, 16, 18, 22, 26

p. 388 # 1-4, 6ab, 7, 9, 11, 13, 16, 18, 22, 26