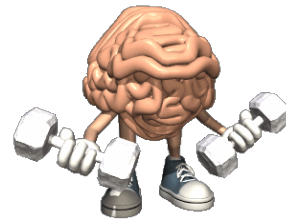


Warm Up



1a)What is the slope of a line that passes through the points(14,-18) and (8, -20) ?

b)What is the slope of a line perpendicular to a line that passes through the points(5,3) and (-12, 6) ?

Warm up solutions

1a) What is the slope of a line that passes through the points (14, -18) and (8, -20) ?

x_1 y_1 x_2 y_2

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{(-20) - (-18)}{(8) - (14)}$$

$$= \frac{-2}{-6}$$

$$= +\frac{1}{3}$$



Warm up solutions

b) What is the slope of a line perpendicular to a line that passes through the points (5, 3) and (-12, 6) ?

$x_1 y_1$ $x_2 y_2$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{(6) - (3)}{(-12) - (5)}$$

$$= \frac{3}{-17}$$

$$= -\frac{3}{17}$$

$$m_{\perp} = +\frac{17}{3}$$

perpendicular

$$m_{\parallel} = -\frac{3}{17}$$

parallel

slope

Intercept Form

$$y = mx + b$$

$$y = mx + b$$

Slope (m)

y-intercept (b)

also have a point
(0, y)

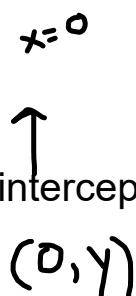
1)

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

What is the slope and the y-intercept? (Write the y-intercept as an ordered pair)

$m = -\frac{1}{2}$

$b = 5$
 $(0, 5)$



2)

Given $y = 2x - 7$

What is the slope and the y-intercept? (Write the y-intercept as an ordered pair)

$m = 2$

$b = -7$
 $(0, -7)$

3) Write the equation of a line given $m = 2$ and a point of the line is $(0, -3)$

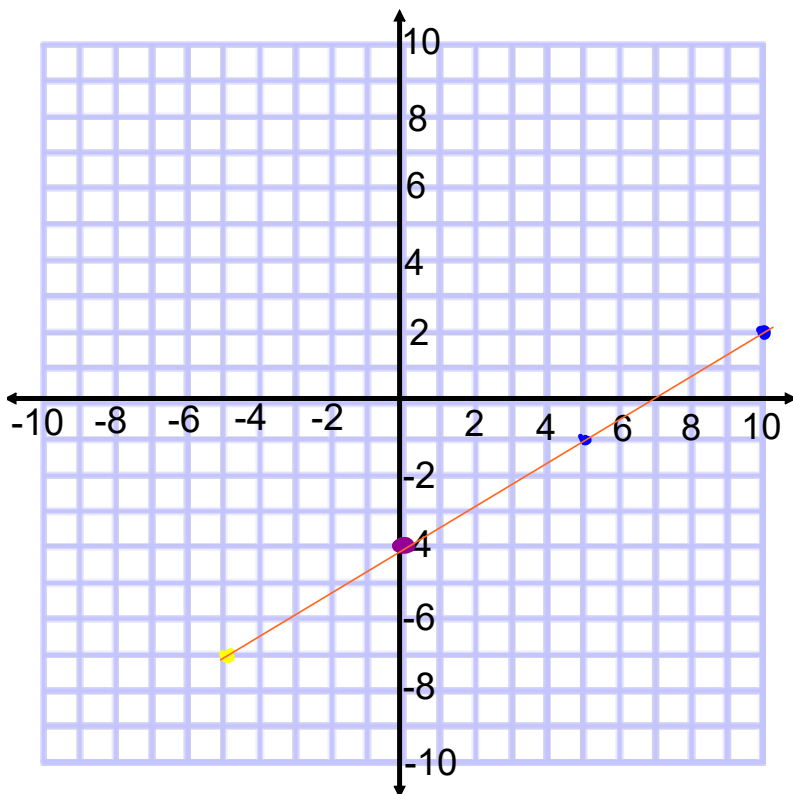
y int
b/c
x=0

$m = 2$ $b = -3$

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

The graph of a linear function has slope $\frac{3}{5}$ and y -intercept -4 .
Write an equation for this function.

↓
Point
(0, -4)



Graph the following

To graph a line you need :

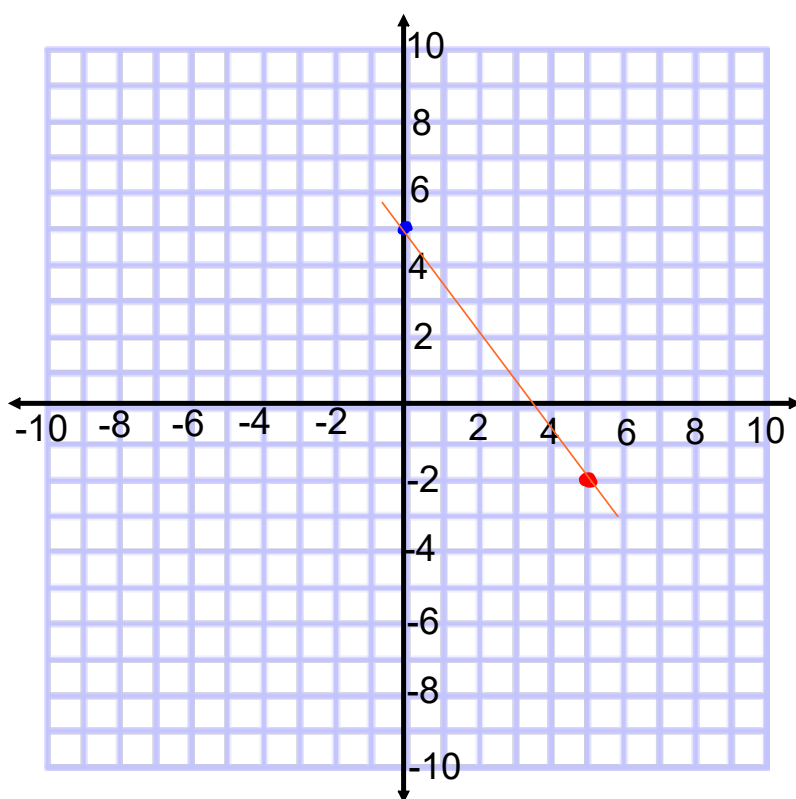
i) One point (0, -4)

ii) Slope $m = \frac{3}{5}$ $\frac{\text{rise}}{\text{run}}$

$\frac{-3}{-5}$

1. The graph of a linear function has slope $-\frac{7}{3}$ and y-intercept 5.

Write an equation for this function.



$$m = -\frac{7}{3} \quad b = 5$$

\Rightarrow $-\frac{7}{3}$ Down
3 Right

or
 $\frac{7}{3}$ Up
3 Left

Example 2

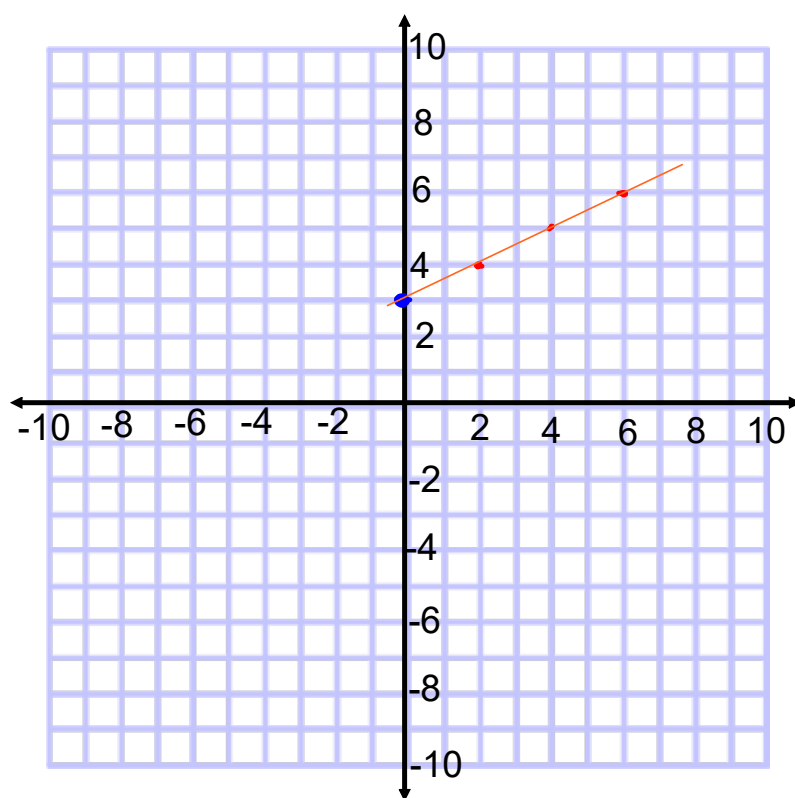
Graphing a Linear Function Given Its Equation in Slope-Intercept Form

Graph the linear function with equation: $y = \frac{1}{2}x + 3$

$$m = \frac{1 \text{ rise}}{2 \text{ run}}$$

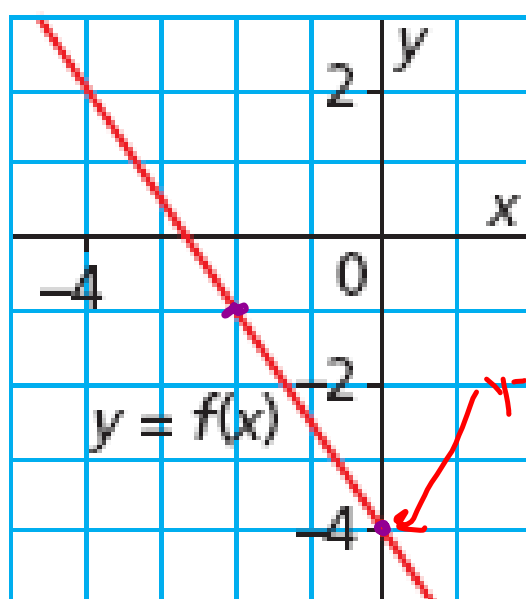
$$b = +3$$

$$(0, 3)$$



Example 3**Writing the Equation of a Linear Function Given Its Graph**

Write an equation to describe this function.
Verify the equation.

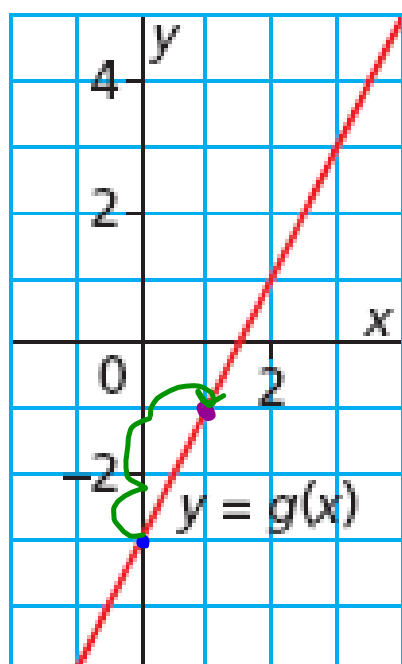


$$m = \frac{3}{-2}$$

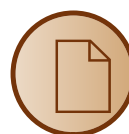
$$b = -4$$

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

6. Write an equation to describe this function. Verify the equation.



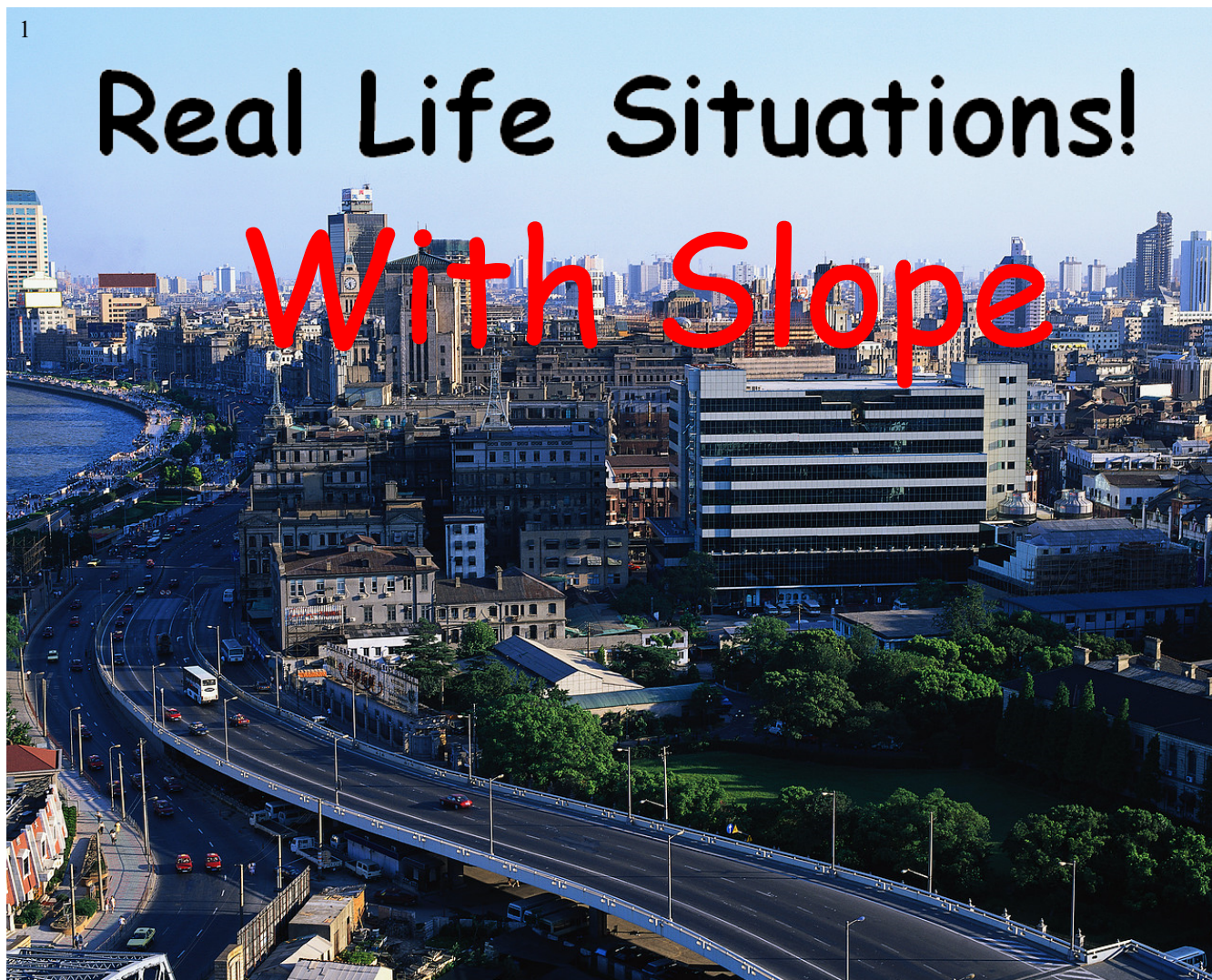
$$b = -3 \quad m = \frac{2}{1} = 2$$
$$y = mx + b$$
$$y = 2x - 3$$



1

Real Life Situations!

With Slope



- 3 Ashely babysits on the weekend to make extra money. She charges \$15 as a flat rate and then \$5 every hour. Write an equation that represents the total pay she will make at the end of each babysitting job.

rate slope

$$y = mx + b$$

$$y = 5x + 15$$

$$p = 5h + 15$$

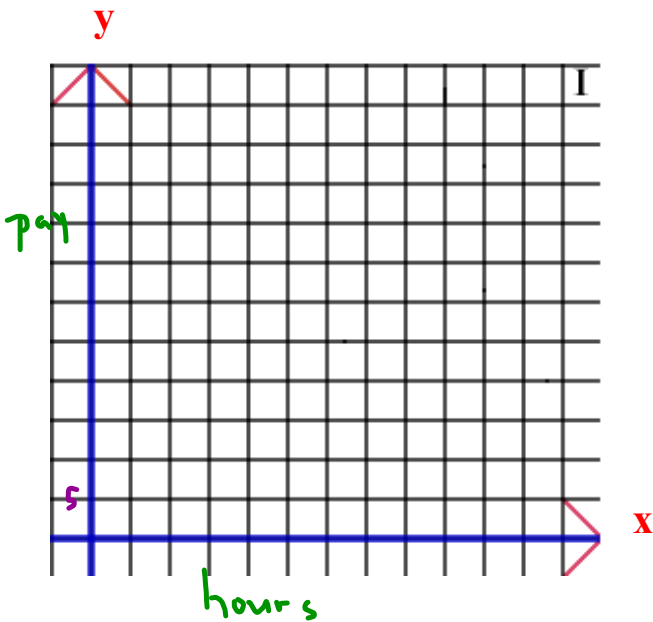
$$b = 15$$

$$m = 5$$

$$x = \text{hours}$$

$$y = \text{pay}$$

Graph



Equation

1. How much would it cost to have Ashley babysit for 3 hours?
2. How many hours could you have Ashley babysit for if you had \$45?

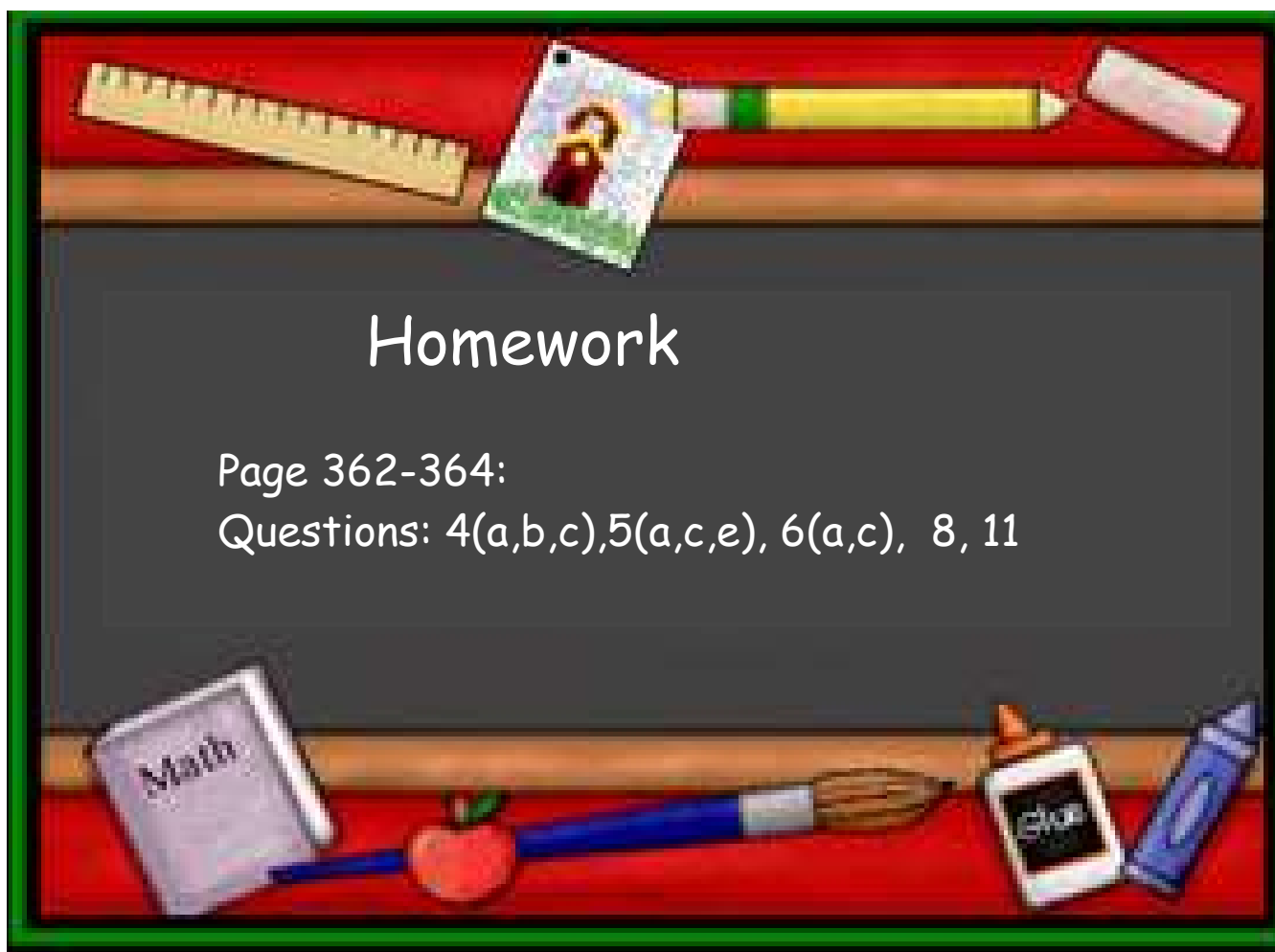
$$y = mx + b$$

Slope (m) = Cost per hour, Cost per Km, Cost per picture, etc....

y-intercept (b) = Initial cost, base rate, initial fee, flat rate, sitting fee, starting cost etc.....

x = Number of kilometers, Number of hours, Number of pictures, etc....

y = Total Cost \$\$\$\$, Total Earned \$\$\$



4. For each equation, identify the slope and y -intercept of its graph.

a) $y = 4x - 7$

b) $y = x + 12$

c) $y = -\frac{4}{9}x + 7$

d) $y = 11x - \frac{3}{8}$

e) $y = \frac{1}{5}x$

f) $y = 3$

5. Write an equation for the graph of a linear function that:

a) has slope 7 and y -intercept 16

b) has slope $-\frac{3}{8}$ and y -intercept 5

c) passes through H(0, ^b-3) and has slope $\frac{7}{16}$

d) has y -intercept -8 and slope $-\frac{6}{5}$

e) passes through the ^(a,b)origin and has slope $-\frac{5}{12}$
_{b = 0}

Sketch

6. Graph the line with each y -intercept and slope.

a) y -intercept is 1, slope is $\frac{1}{2}$

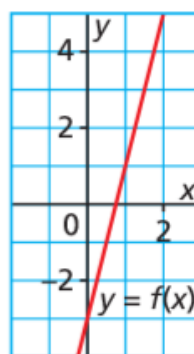
b) y -intercept is -5 , slope is 2

c) y -intercept is 4, slope is $-\frac{2}{3}$

d) y -intercept is 0, slope is $\frac{4}{3}$

- 8.** For a service call, an electrician charges an \$80 initial fee, plus \$50 for each hour she works.
- a) Write an equation to represent the total cost, C dollars, for t hours of work.
 - b) How would the equation change if the electrician charges \$100 initial fee plus \$40 for each hour she works?

- 11.** A student said that the equation of this graph is $y = -3x + 4$.
- a) What mistakes did the student make?
 - b) What is the equation of the graph?

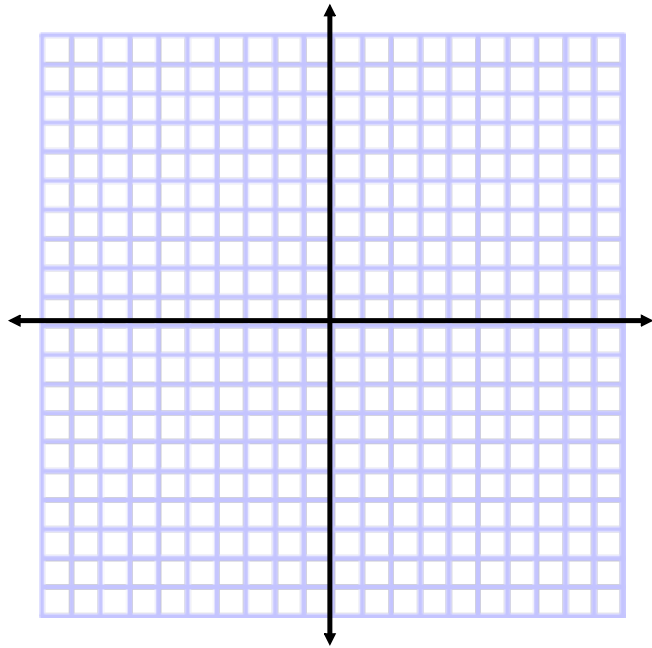


Worksheet #3

Graph the following:

y intercept = 6

Slope = $-\frac{3}{7}$



Solutions

Page 362-364:

Questions: 4(a,b,c), 5(a,c,e), 6(a,c), 8, 11

4. a) Slope: 4; y -intercept: -7

b) Slope: 1; y -intercept: 12

c) Slope: $-\frac{4}{9}$; y -intercept: 7

d) Slope: 11; y -intercept: $-\frac{3}{8}$

e) Slope: $\frac{1}{5}$; y -intercept: 0

f) Slope: 0; y -intercept: 3

5. a) $y = 7x + 16$

b) $y = -\frac{3}{8}x + 5$

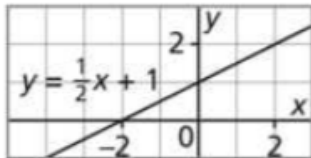
c) $y = \frac{7}{16}x - 3$

d) $y = -\frac{6}{5}x - 8$

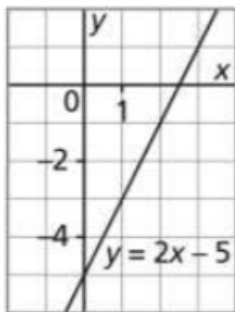
e) $y = -\frac{5}{12}x$

6. Sketches may vary. For example:

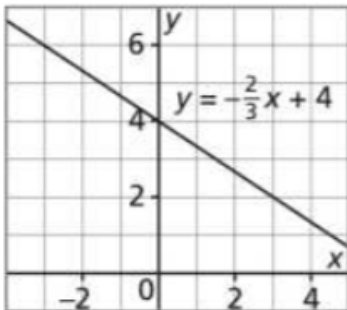
a)



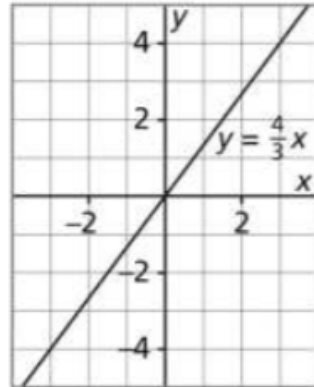
b)



c)



d)



8. a) $C = 50t + 80$ b) $C = 40t + 100$

11. a) The student may have confused the values of the slope and the y -intercept.

b) $y = 4x - 3$

Worksheet #3

Solutions

Graph the following:

y intercept = 6 \Rightarrow *plot first* (0,6)

Slope = $\frac{-3}{7}$ *rise*
run

