

Section 6.4 Slope-Intercept Form of the Equation for a Linear Function

Example 1 Refer to the equations below:

$$y = -8x + 3$$

$$y = x - 4$$

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

$$y = \frac{1}{4}x - 5$$

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

$$y = 0.3x + 20$$

a) What do you notice about each equation?

- These equations each represent a linear function - a straight line graph!
- These equations are all written in slope-intercept form, for the equation of a line.

Slope-Intercept Form

$$y = mx + b$$

$$y = m x + b$$

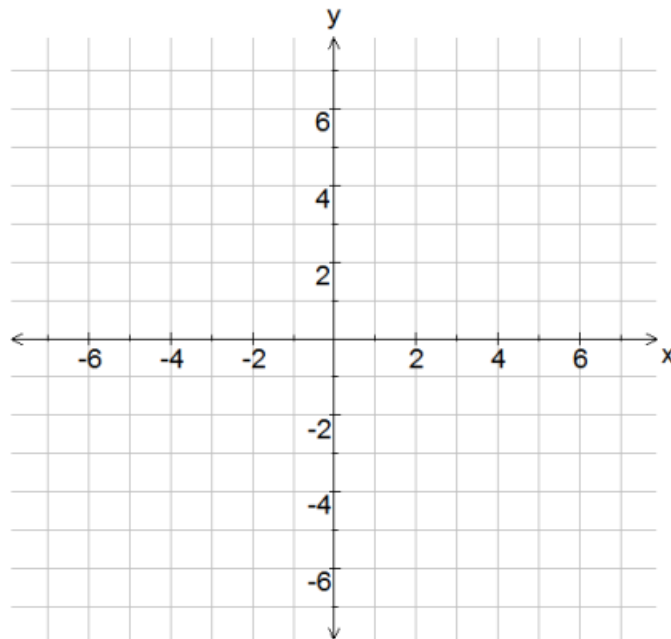
b) Refer back to the equations above and identify the slope and y-intercept.

Example 2

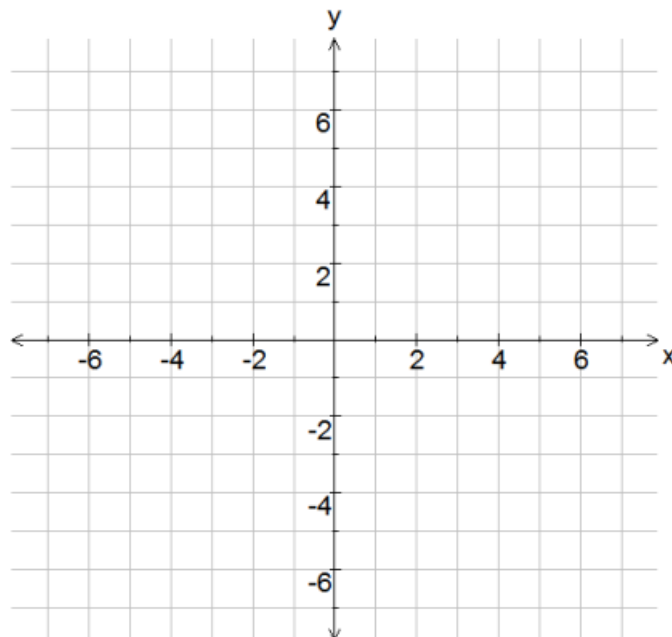
The graph of a linear function has a slope $\frac{3}{5}$ and y-intercept -4 .
Write an equation for this function.

Example 3 Graph the linear function with equation:

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



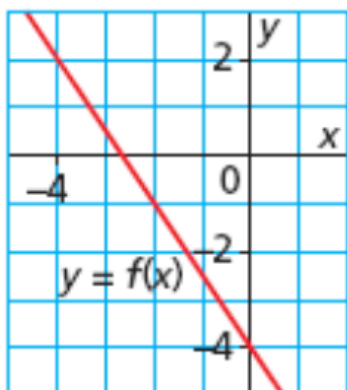
b) $y = -\frac{3}{4}x + 2$



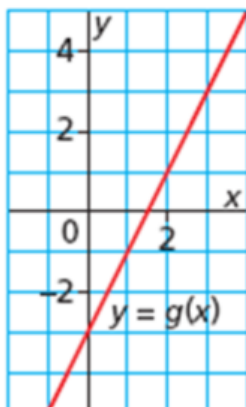
Example 4

Write the equation to describe each function.

a)



b)



Work Book Questions

p.362 - 363 #4acef, 5ace, 6ac, 7ac,
11ab, 12(i) a,b

Extra Practice Questions

p.362 - 363 #4bd, 5bd, 6bd,
7bd, 12(i) c,d

Worksheet: Slope

Writing the Equation of a Line from the Slope and a Point.

Example 5

- a) What is the equation of a line with slope $\frac{1}{2}$, passing through $(2,3)$.
- b) What is the equation of a line with a slope perpendicular to the line $y = -3x + 1$ and passing through the point $(-6,4)$.
- c) Determine the equation of a line passing through two points $(1,2)$ and $(-3,4)$.

Application questions using the equation of a line.

Example 6

a) What is the value of k such that the line passing through $(4, -5)$ and $(2, k)$ is parallel to the line $y = -4x + 3$?

b) What is the value of k such that the line passing through $(3, 6)$ and $(-1, k)$ is parallel to the line $y = 2x + 5$?

Example 7

The student council sponsored a dance. A ticket cost \$5 and the cost of the DJ was \$300.

- A) Write an equation for the profit, P dollars, on the sale of t tickets.
- B) Suppose 123 people bought tickets. What was the profit?
- C) Suppose the profit was \$350. How many people bought tickets?
- D) Could the profit be exactly \$146? Justify the answer.

Example 8

To join the local gym, Karim pays a start up fee of \$99, plus a monthly fee of \$29.

- A) Write an equation for the total cost, C dollars, for n months at the gym.

- B) Suppose Karim went to the gym for 23 months. What was the total cost?

- C) Suppose the total cost was \$505. For how many months did Karim use the gym?

- D) Could the total cost be exactly \$600? Justify your answer.

Work Book Questions

p.362 - 364 #8ab, 13abcd, 14abc,
17bc, 18abcd, 20ab, 21, 22, 23

Extra Practice Questions

p.362 - 364 #17a, 19abcd,
20bc, 24

Worksheet: Equation of a line
Review Sheet