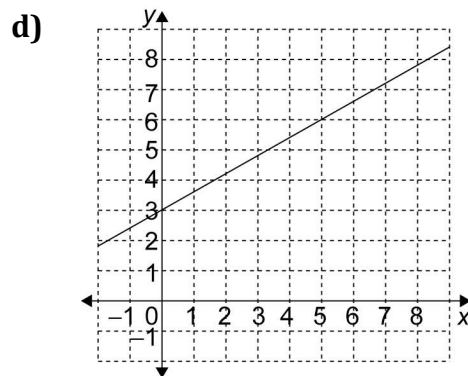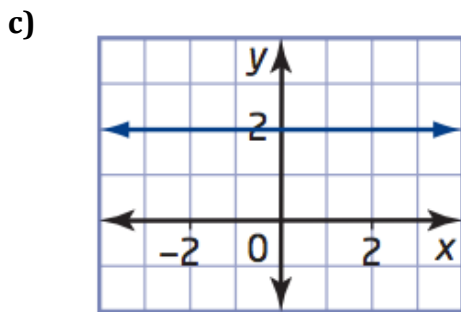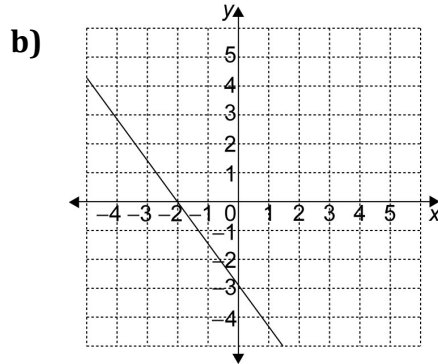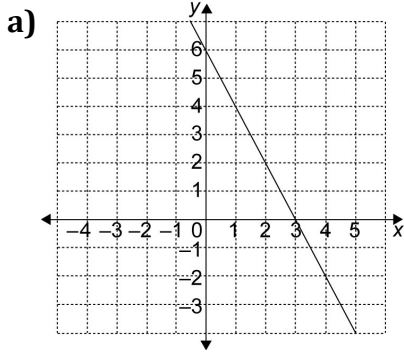# Chapter 6 Review

6.1 The Equation of a Line in Slope *y*-Intercept Form: *y* = *mx* + *b*, pages 296–307

1. Find the slope and *y*-intercept of each line.

a)

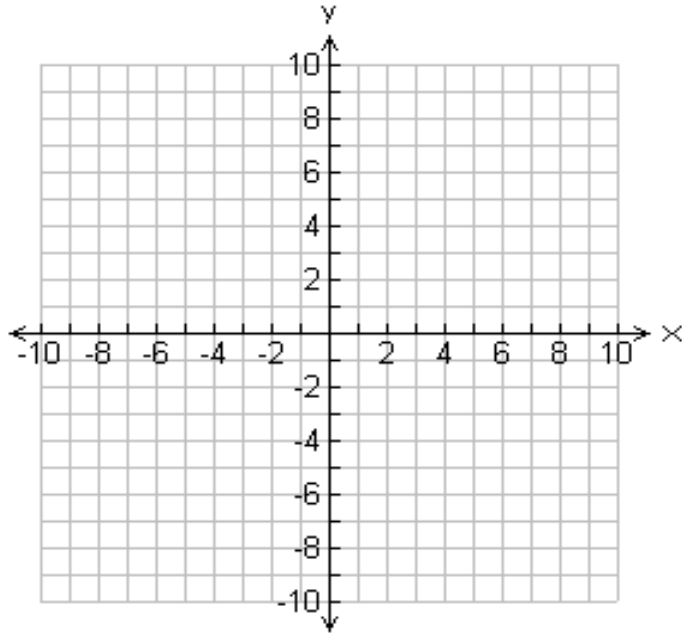**b)**

c)

d)

2. Identify the slope and *y*-intercept of each line.

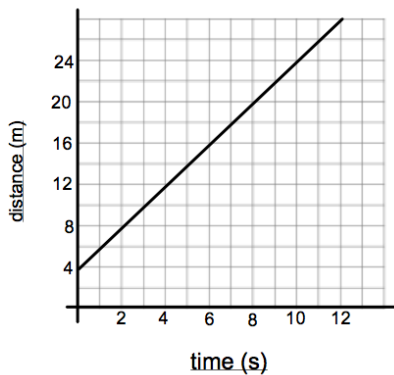**a)** $y = 4x - 5$

b) $y = -\dfrac{1}{6}x + 2$

3. Write the equation of a line with each slope and *y*-intercept. Then, graph each line.

a) $m = -1, b = 0$

b) $m = \frac{2}{3}, b = 5$

4. Frank recorded his motion with a motion sensor and produced this graph.

a) How far was Frank from the motion sensor when he started moving?

b) Was Frank moving toward the motion sensor or away from it? How fast was he moving?

c) Write an equation that describes this distance-time relationship.

6.2 The Equation of a Line in Standard Form: $Ax + By + C = 0$, pages 308–314

5. Express each equation in the form $y = mx + b$. *(HINT: SOLVE THE EQUATION FOR 'y')*

a) $6x - y = 4$ **b)** $x + 4y = 28$ **c)** $3x + 5y + 15 = 0$

6. Identify the slope and y-intercept of each equation.

a) $8x + y = 4$ **b)** $-3x + 2y = 8$

6.3 Graph a Line Using Intercepts, pages 315–322
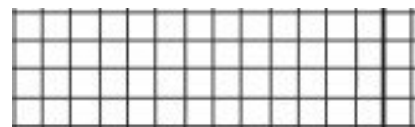
7. Identify the x- and y-intercepts of each line. Then, graph the line all on the same grid (on the following page).

a) $4x - 2y = 8$ **b)** $x + 3y = 6$

c) $2y + 2x = -16$ **d)** $5x + 3y - 15 = 0$

6.4 Parallel and Perpendicular Lines, pages 326–329

8. Rearrange each of the following lines in to slope y-intercept form (y=mx+b)

a) $2x - 3y + 12 = 0$

b) $3y = 2x + 6$

c) $3x - 2y = 0$

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

9. Which lines are parallel?

10. Which lines in question 7 are perpendicular?

11. Write the slope that is perpendicular to each of the following slopes:

a) $m = \frac{1}{2}$ **b)** $m = -3$ **c)** $m = \frac{-2}{5}$ **d)** $m = 5$

12. What is the slope of a line that is perpendicular to $3 - x + 4y = 0$?

6.5 Find an Equation for a Line Given the Slope and a Point, pages 330–337

13. Find the equation of a line with a slope of –3, passing through (2, –5).

14. Find the equation of a line with a slope of $\frac{2}{3}$ passing through (1,-4)

15. Find the equation of a line parallel to $2x + 5y = 1$, with the same y-intercept as $x - 4y = 8$.

16. Find the equation for a line perpendicular to $y = 2x - 3$, that passes through the origin $(0,0)$.

6.6 Find an Equation for a Line Given Two Points, pages 338–343

17. Find the equation for a line passing through $(3, -4)$ and $(2, 5)$.

18. Find an equation for a line passing through $(-2,5)$ and $(3,-5)$

19. Ingrid is walking in front of a motion sensor. After 1 s, she is 3.9 m from the sensor. After 3 s, she is 1.7 m from the sensor.
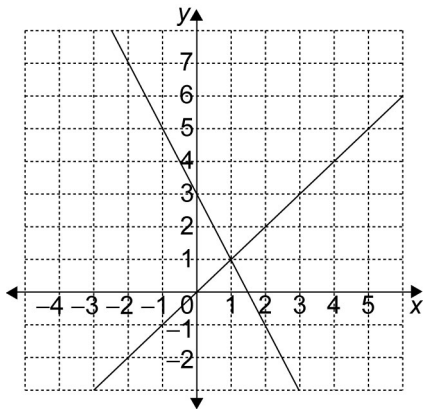
   a) Find the slope for this relationship.

   b) Write an equation of the form $d = mt + b$ that describes Ingrid's motion.
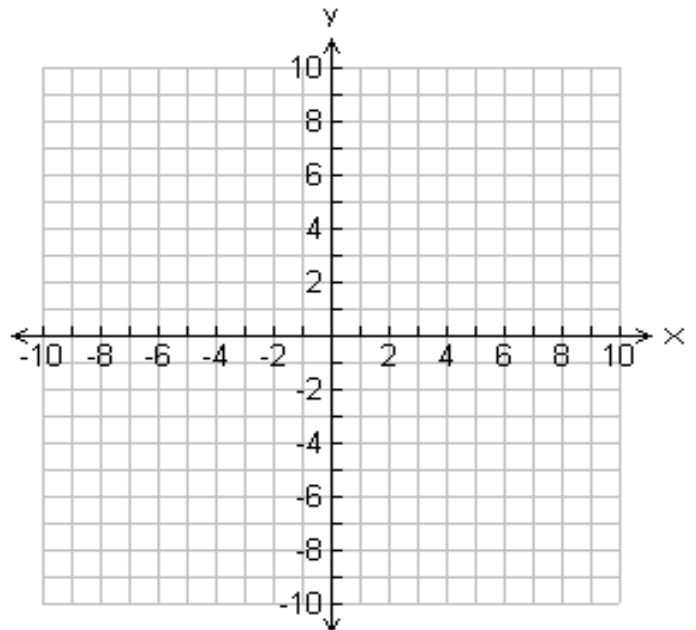
   c) After how many seconds will Ingrid's distance from the motion sensor be 0?

6.7 Linear Systems, pages 344–351

20. What is the solution to this linear system?

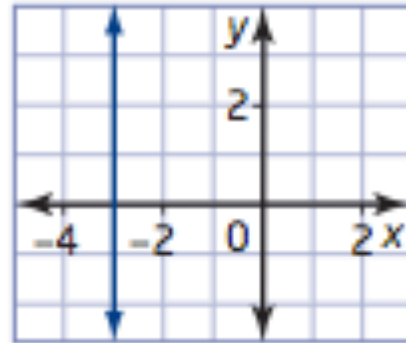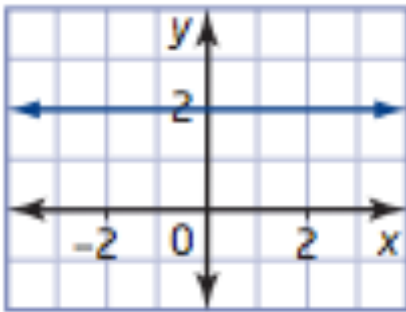**21.** Solve the linear system $x + y = 6$ and $y - 2x = 0$.

Vertical and Horizontal Lines

22. Fill in the following blanks:

a) In general, a horizontal line has a slope that is _____ and an equation of the form _____ where 'b' is the _____.

b) In general, a vertical line has a slope that is _____ and an equation of the form _____ where 'a' is the _____.

23. What are the slope, y-intercept and equation of each of the following lines

Equation:
Slope:
y-intercept:

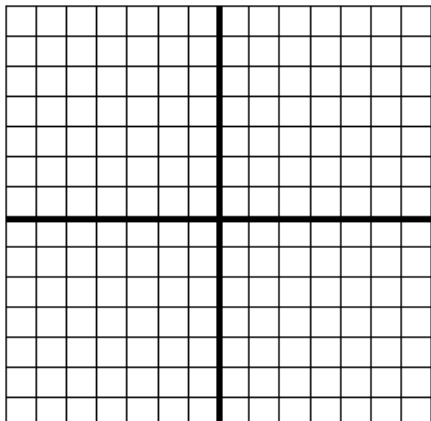| Equation: |
| --- |
| Slope: |
| y-interc |

24. Find the slope and *y*-intercept of each line, if they exist. Graph each line.
   a) $y = -5$ **b)** $x = 4$

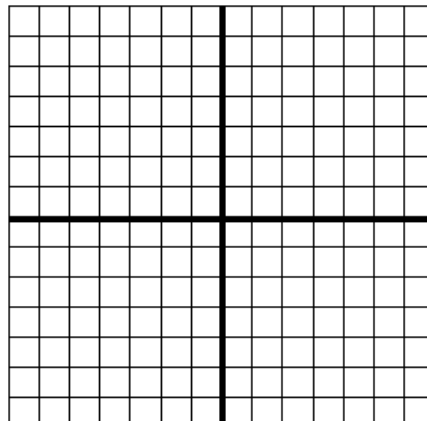   slope: slope:

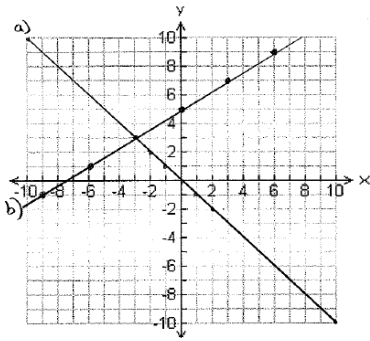   y-intercept: y-intercept:

Answers

1)a) -2,6 b) $\frac{-3}{2}, -3$ c) 0,2 d) $\frac{3}{5}, 3$

2)a) 4,-5 b) $\frac{-1}{6}, 2$
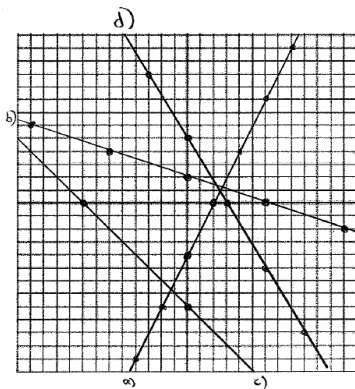
3)a) $y = -x$ b) $y = \frac{2}{3}x + 5$

4)a) 4m b) away at a speed of 2m/s c) $y = 2x + 4$

5)a) $y = 6x - 4$ b) $y = \frac{-1}{4}x + 7$ c) $y = \frac{-3}{5}x - 3$

6) a) -8,4 b) $\frac{3}{2}, 4$

7) a) (2,0) and (0,-4) b) (6,0) and (0,2) c) (-8,0) and (0,-8) d) (3,0) and (0,5)

8) a) $y = \frac{2}{3}x + 4$ b) $y = \frac{2}{3}x + 2$ c) $y = \frac{3}{2}x$ d) $y = \frac{-3}{2}x - 2$

9)a) a and b

 10) d is perpendicular to a and b

11) a) -2 b) $\frac{1}{3}$ c) $\frac{5}{2}$ d) $\frac{-1}{5}$

12) -4

13) $y = -3x + 1$

14) $y = \frac{2}{3}x - \frac{14}{3}$

15) $y = \frac{-2}{5}x - 2$

16) $y = \frac{-1}{2}x$
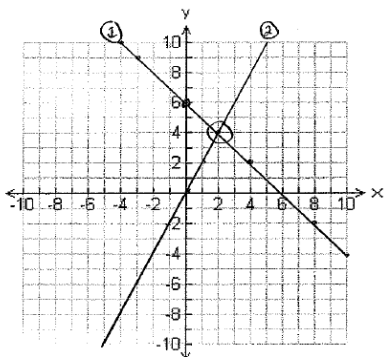
17) $y = -9x + 23$

18) $y = -2x + 1$

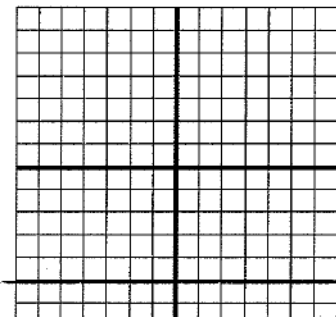19) a) -1.1   b) $d = -1.1t + 5$

20) (1,1)

21) (2,4)

22) a) zero, y=b, y-intercept   b) undefined, x=a, x-intercept

23) a) 0,2, $y = 2$ b) undefined, none, x=-3

24) a) 0,-5

b) undefined, none