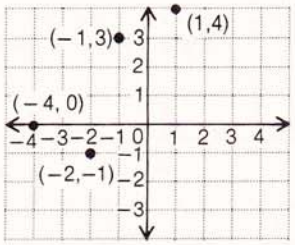
Answers to Unit 8

SECTION 1 Pages 293–296

Example 2



Example 4

$A(4,2)$
$B(-3,4)$
$C(-3,0)$
$D(0,0)$

Example 6

a) Abscissa of point A: 2
Abscissa of point C: -3
b) Ordinate of point B: -2
Ordinate of point D: 0

Example 8

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

-4	$-\frac{1}{2}(2) - 3$
	$-1 - 3$
	-4

$-4 = -4$

Yes, $(2,-4)$ is a solution of $y = -\frac{1}{2}x - 3$.

Example 10

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

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

$= -1 + 1$

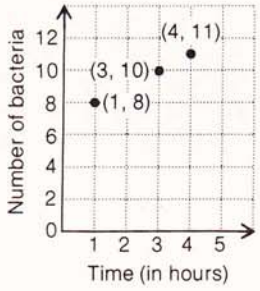
$= 0$

The ordered pair solution is (4,0).

Example 12

Strategy Graph the ordered pairs (1,8), (3,10), and (4,11).

Solution



Pages 297–299

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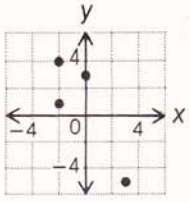

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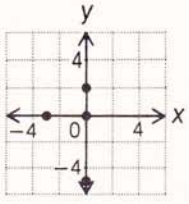

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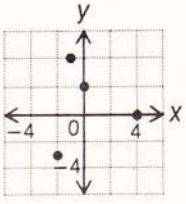

7. A is (2,3), B is (4,0), C is (−4,1) and D is (−2,−2). **9.** A is (−2,5), B is (3,4), C is (0,0) and D is (−3,−2). **11. a)** The abscissa of point A is 2. The abscissa of point C is −4. **b)** The ordinate of point B is 1. The ordinate of point D is −3. **13.** Yes, (3,4) is a solution of $y = -x + 7$. **15.** No, (−1,2) is not a solution of $y = \frac{1}{2}x - 1$. **17.** No, (4,1) is not a solution of $y = \frac{1}{4}x + 1$. **19.** Yes, (0,4) is a solution of $y = \frac{3}{4}x + 4$. **21.** No, (0,0) is not a solution of $y = 3x + 2$. **23.** The ordered pair solution is (3,7). **25.** The ordered pair solution is (6,3). **27.** The ordered pair solution is (0,1). **29.** The ordered pair solution is (−5,0).

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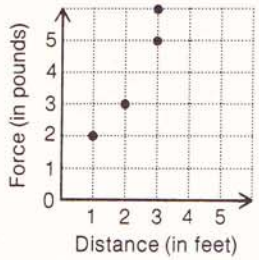
1.



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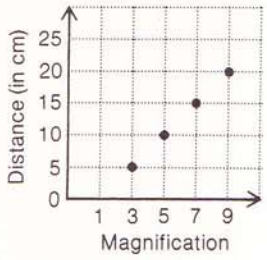
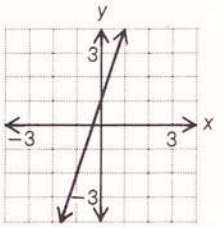
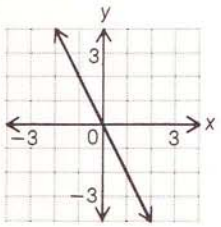


SECTION 2 Pages 301–304

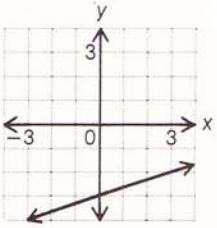
Example 2



Example 4



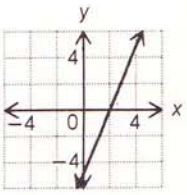
Example 6



Example 8 $5x - 2y = 10$

$-2y = -5x + 10$

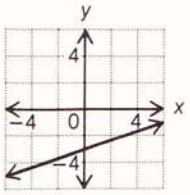
$y = \frac{5}{2}x - 5$



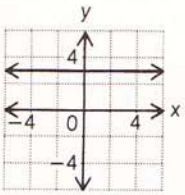
Example 10 $x - 3y = 9$

$-3y = -x + 9$

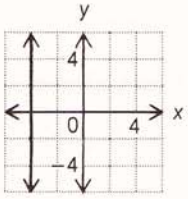
$y = \frac{1}{3}x - 3$



Example 12



Example 14



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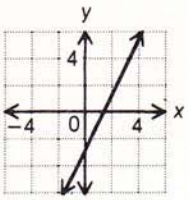

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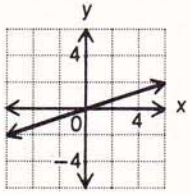

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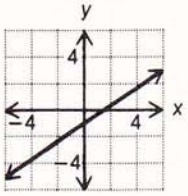

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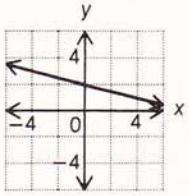

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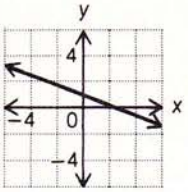

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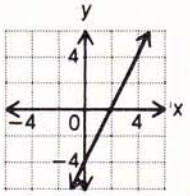

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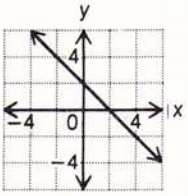

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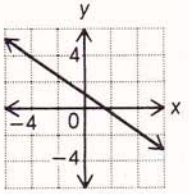

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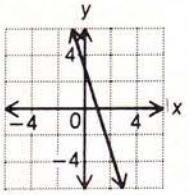

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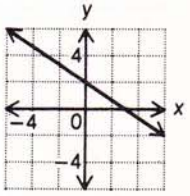

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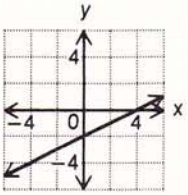

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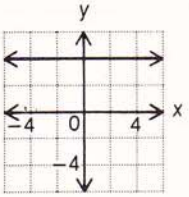

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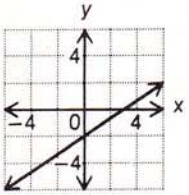

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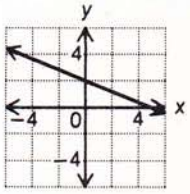

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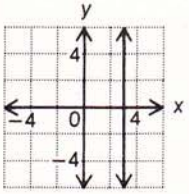

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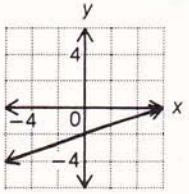

SECTION 3

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Example 2

x-intercept:

$4x - y = 4$

$4x - 0 = 4$

$4x = 4$

$x = 1$

(1,0)

y-intercept:

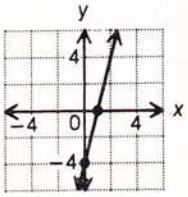
$4x - y = 4$

$4(0) - y = 4$

$-y = 4$

$y = -4$

(0, −4)



Example 4

x-intercept:

$y = 3x - 6$

$0 = 3x - 6$

$-3x = -6$

$x = 2$

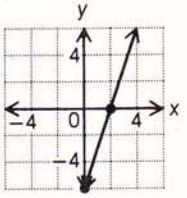
(2,0)

y-intercept:

$y = 3x - 6$

$b = -6$

(0, −6)



Example 6

Let $P_1 = (-1,2)$ and $P_2 = (1,3)$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 2}{1 - (-1)} = \frac{1}{2}$$

The slope is $\frac{1}{2}$.

Example 8

Let $P_1 = (1,2)$ and $P_2 = (4,-5)$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-5 - 2}{4 - 1} = \frac{-7}{3}$$

The slope is $-\frac{7}{3}$.

Example 10 Let $P_1 = (2,3)$ and $P_2 = (2,7)$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7-3}{2-2} = \frac{4}{0}$$

The line has no slope.

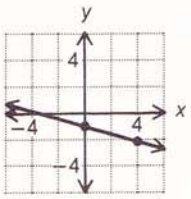
Example 12 Let $P_1 = (1,-3)$ and $P_2 = (-5,-3)$.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-3-(-3)}{-5-1} = \frac{0}{-6} = 0$$

The line has zero slope.

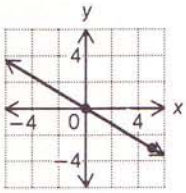
Example 14 y-intercept $= (0,b) = (0,-1)$

$m = -\frac{1}{4}$



Example 16 y-intercept $= (0,b) = (0,0)$

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

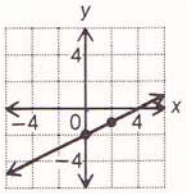


Example 18 Solve the equation for y.

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

y-intercept $= (0,b) = (0,-2)$

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



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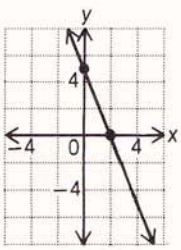
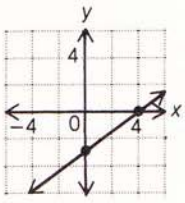
1. The x-intercept is (3,0), and the y-intercept is (0,−3).
3. The x-intercept is (2,0), and the y-intercept is (0,−6).
5. The x-intercept is (10,0), and the y-intercept is (0,−2).
7. The x-intercept is (−4,0) and the y-intercept is (0,12).
9. The x-intercept and the y-intercept are both (0,0).
11. The x-intercept is (6,0), and the y-intercept is (0,3).
13. x-intercept: (2,0)
y-intercept: (0,5)



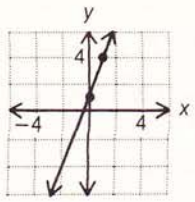
15. x-intercept: (4,0)
y-intercept: (0,−3)

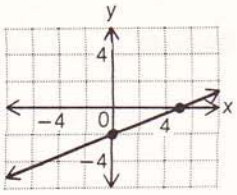


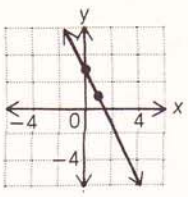
17. The slope is −2. **19.** The slope is $\frac{1}{3}$. **21.** *The slope is* $-\frac{5}{2}$. **23.** *The slope is* $-\frac{1}{2}$. **25.** *The slope is* −1.

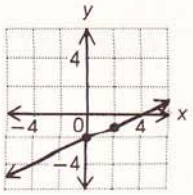
27. The line has no slope. **29.** The line has zero slope. **31.** The slope is $-\frac{1}{3}$. **33.** The line has zero slope.

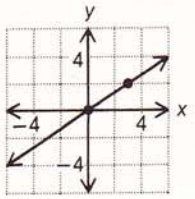
35. The slope is −5. **37.** The line has no slope. **39.** The slope is $-\frac{2}{3}$.

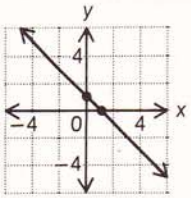
41. 

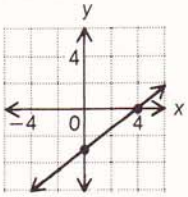
43. 

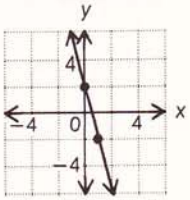
45. 

47. 

49. 

51. 

53. 

55. 

SECTION 4 Pages 319–320

Example 2

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

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

$-2 = 6 + b$

$-8 = b$

$y = \frac{3}{2}x - 8$

Example 4

$m = \frac{3}{4}$ $\quad (x_1, y_1) = (4, -2)$

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

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

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

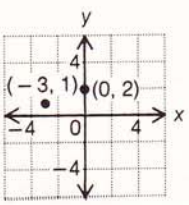
$y = \frac{3}{4}x - 5$

The equation of the line is $y = \frac{3}{4}x - 5$.

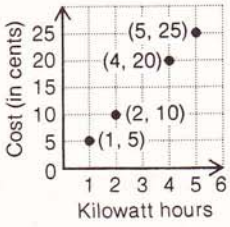
Pages 321–322

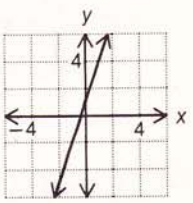
1. The equation of the line is $y = 2x + 2$. **3.** The equation of the line is $y = -3x - 1$. **5.** The equation of the line is $y = \frac{1}{3}x$. **7.** The equation of the line is $y = \frac{3}{4}x - 5$. **9.** The equation of the line is $y = -\frac{3}{5}x$. **11.** The equation of the line is $y = \frac{1}{4}x + \frac{5}{2}$. **13.** The equation of the line is $y = 2x - 3$. **15.** The equation of the line is $y = -2x - 3$. **17.** The equation of the line is $y = \frac{2}{3}x$. **19.** The equation of the line is $y = \frac{1}{2}x + 2$. **21.** The equation of the line is $y = -\frac{3}{4}x - 2$. **23.** The equation of the line is $y = \frac{3}{4}x + \frac{5}{2}$.

REVIEW / TESTS
Pages 323–324

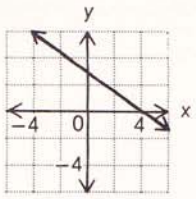
1.1 

1.2 The ordered pair solution is (3,0).

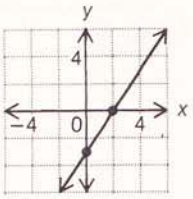
1.3 

2.1a 

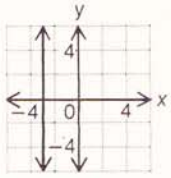
2.1b



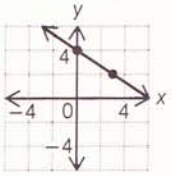
2.2a



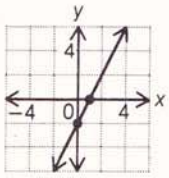
2.2b



3.1a The x-intercept is $(2,0)$, and the y-intercept is $(0,-3)$. **3.1b** The x-intercept is $(-2,0)$, and the y-intercept is $(0,1)$. **3.2a** The slope is 2. **3.2b** The line has zero slope. **3.3a**



3.3b



4.1a The equation of the line is $y = 3x - 1$. **4.1b** The equation of the line is $y = \frac{2}{3}x + 3$.

4.2a The equation of the line is $y = \frac{1}{2}x + 2$. **4.2b** The equation of the line is $y = -\frac{2}{3}x + \frac{4}{3}$.

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1.1 d **1.2** b **1.3** c **2.1a** a **2.1b** a **2.2a** d **2.2b** c **3.1a** a **3.1b** b **3.2a** b **3.2b** d
3.3a a **3.3b** d **4.1a** a **4.1b** d **4.2a** c **4.2b** b