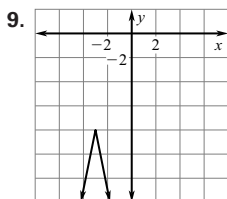
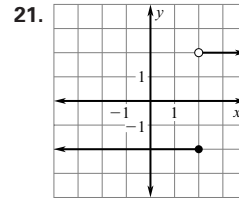
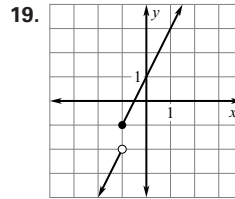
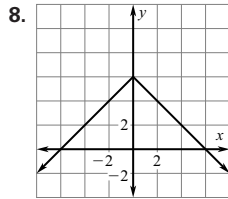
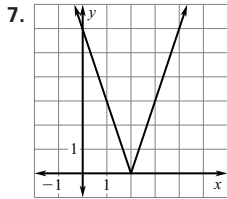
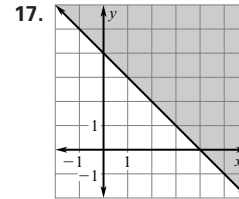
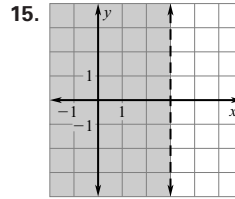


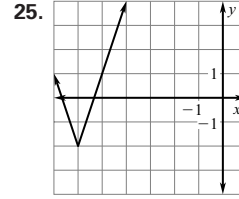
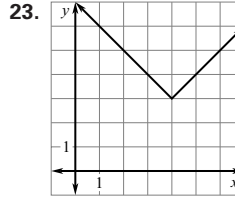
5. 7 6. 5



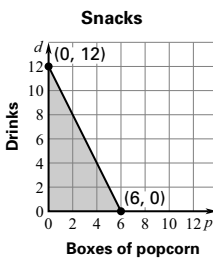
10.  $y = \frac{3}{2}|x - 2|$

11.  $y = -|x + 2| + 2$

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



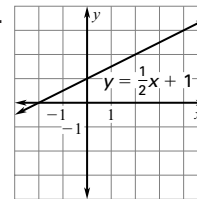
13.  $2.5p + 1.25d \leq 15$ ;



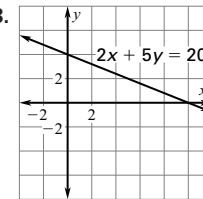
**CHAPTER 3**

**SKILL REVIEW (p. 138)** 1. no 2. yes 3. yes 4. yes 5. no

6. yes 7.

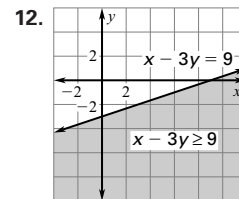
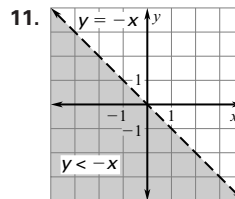
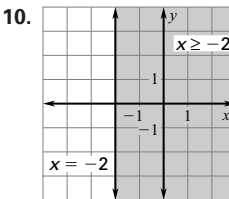
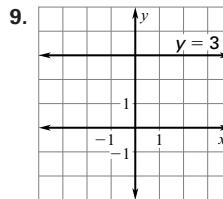
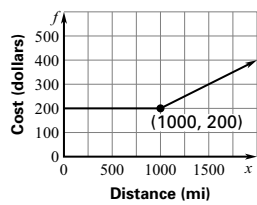


8.



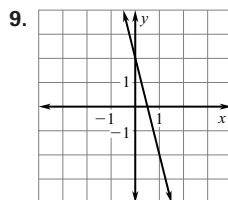
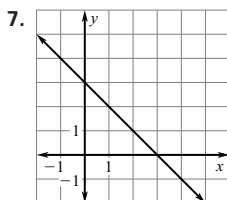
14.  $f(x) = \begin{cases} 200, & \text{if } 0 < x \leq 1000 \\ 0.2x, & \text{if } x > 1000 \end{cases}$

**Rental Charges** ; \$240



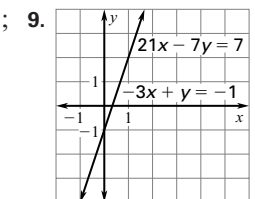
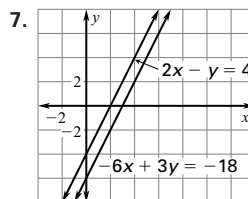
**CHAPTER 2 REVIEW (pp. 130–132)**

1. ; yes 3.  $\frac{2}{3}$  5. -1

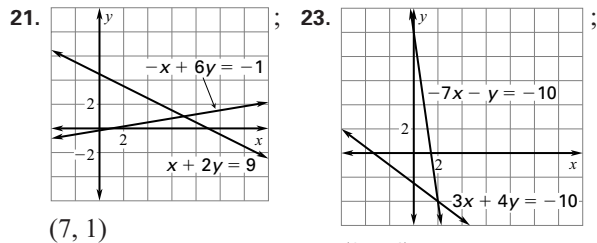


11.  $y = -x + 2$  13.  $y = 2x - 14$

**3.1 PRACTICE (pp. 142–145)** 5. yes

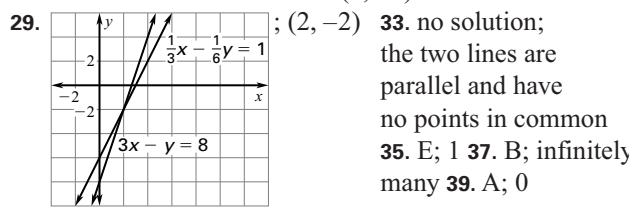


0 infinitely many  
11. yes 13. no 15. yes 17. no 19. no

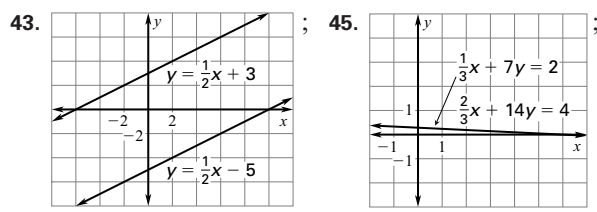


(7, 1)

(2, -4)

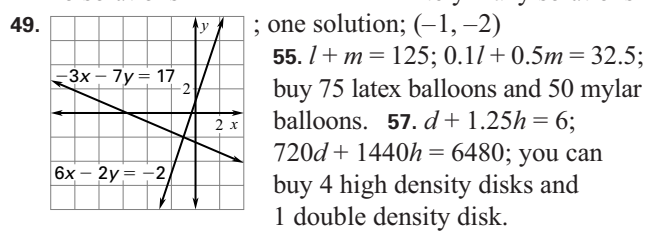


35. E; 1 37. B; infinitely many 39. A; 0



no solutions

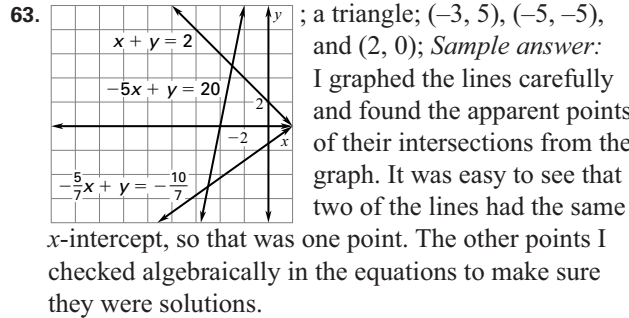
infinitely many solutions



55.  $l + m = 125$ ;  $0.1l + 0.5m = 32.5$ ; buy 75 latex balloons and 50 mylar balloons. 57.  $d + 1.25h = 6$ ;  $720d + 1440h = 6480$ ; you can buy 4 high density disks and 1 double density disk.

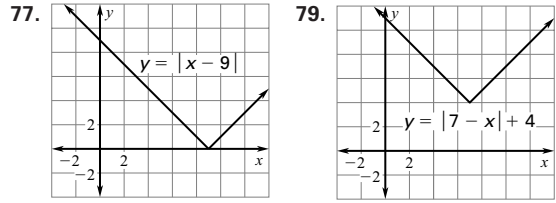
59. Let  $f$  = the travel time in hours of the first bus; let  $s$  = the travel time in hours of the second bus;  $f = s + \frac{1}{12}$ ; 10 miles from the airport;  $30f = 40s$ .

61. consistent and independent



**MIXED REVIEW (p. 145)**

67. 36 69. -0.3 71. -2 73. no; no 75. no; no



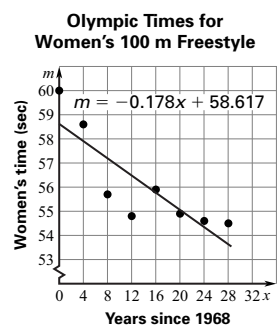
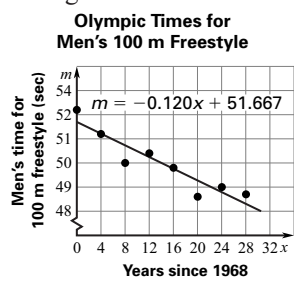
**TECHNOLOGY ACTIVITY 3.1 (p. 146)**

1. (-1, 3) 3.  $(\frac{141}{19}, \frac{119}{19})$ , or about (7.42, 6.26)  
5.  $(-\frac{116}{21}, \frac{47}{21})$ , or about (-5.52, 2.24)

**3.2 PRACTICE (pp. 152-154)**

5. (4, -1) 7. (6, 6) 9. (3, 4)  
11. (4, -1) 13. (3, 3) 15.  $(0, \frac{5}{2})$  17. (-2.4, 10.2)  
19. (3, -10) 21. (-2, 2) 23.  $(-\frac{11}{3}, -1)$  25.  $(0, \frac{4}{5})$   
27. infinitely many solutions 29.  $(\frac{1}{3}, 1)$  31.  $(\frac{18}{41}, \frac{605}{82})$ , or about (0.439, 7.378) 33. no solution 35. (-5, -2)  
37. (5, 0) 39. no solution 41.  $(-\frac{69}{11}, \frac{65}{11})$  43.  $(-\frac{25}{4}, 2.5)$   
45. (20, 3) 47. no solution 49. (9, 6) 51. (2, 3) 53. (2, 2)  
55. \$12; Sample answer: let  $x$  = the cost per foot of the cable itself and  $y$  = the cost of one connector. Then  $6x + 2y = 15.5$  and  $3x + 2y = 10.25$ . Subtracting the second equation from the first, find  $x = 1.75$ . Then a 4-foot cable with connectors will cost  $10.25 + 1.75 = \$12$ . 57. inline skating: 25 min; swimming: 15 min

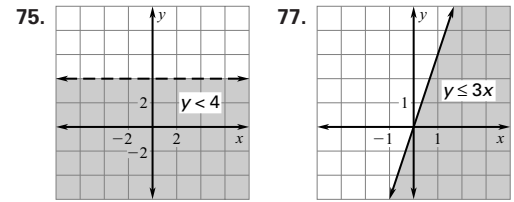
59.



61. (119.83, 37.288); 120 years after 1968, in the year 2088 summer olympics, the men's and women's times in the 100 m freestyle will both be about 37.3 sec.

**3.2 MIXED REVIEW (p. 155)**

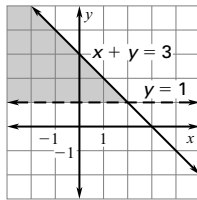
67. -8, -2 69.  $-\frac{3}{2}$ , 1 71. 24, -4 73.  $y = 2x - 3$

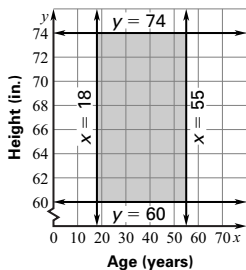


79.  81.  $12x + 25 \leq 60$ ;  $x \leq \frac{35}{12}$

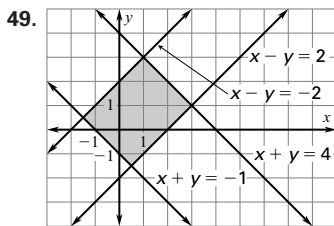
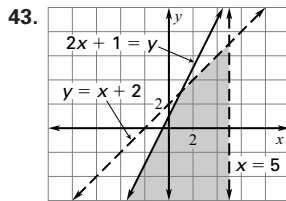
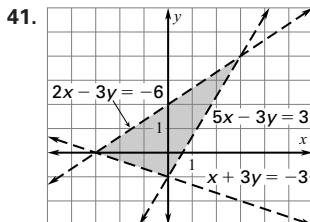
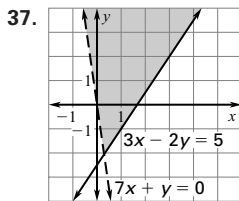
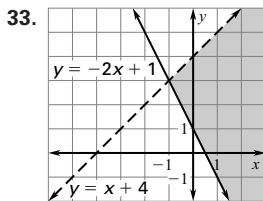
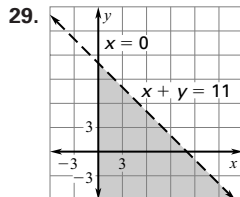
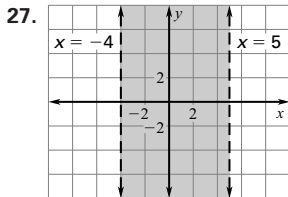
- QUIZ 1 (p. 155)** 1.  $(-2, 1)$  2.  $(1, -3)$  3. no solutions  
 4.  $(\frac{7}{3}, -\frac{8}{3})$  5.  $(1, 4)$  6.  $(-1, -1)$  7. infinitely many solutions  
 8. 1 9. no solutions 10. 1 11. 1 12. infinitely many solutions  
 13.  $(-\frac{5}{4}, -\frac{15}{4})$  14.  $(6, 6)$  15. infinitely many solutions  
 16.  $(-4, \frac{7}{2})$  17. no solution 18.  $(-\frac{33}{29}, \frac{13}{29})$   
 19. 371; 566

**3.3 GUIDED PRACTICE (pp. 159–161)** 5. no 7. yes

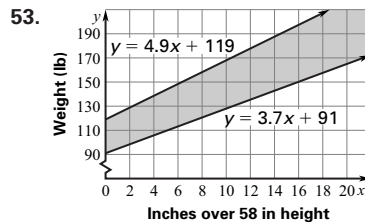
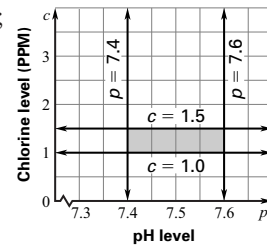
9.  11.  $18 \leq x \leq 55$ ;  $60 \leq y \leq 74$ ;



13. no 15. *Sample answer:*  $(13, 10)$  17. *Sample answer:*  $(-2, -10)$  19. *Sample answer:*  $(4, 2)$  21. C 23. F 25. A

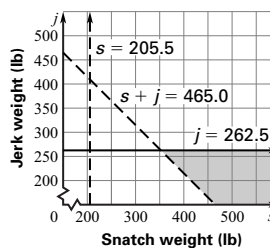


51.  $7.4 \leq p \leq 7.6$ ,  $1.0 \leq c \leq 1.5$ ;



55.  $0.75x \leq y$ ;  $y \leq 0.9x$ ;  
 $20 \leq x \leq 80$

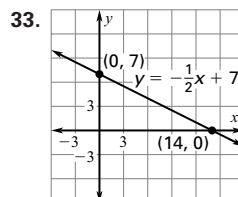
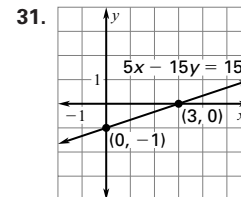
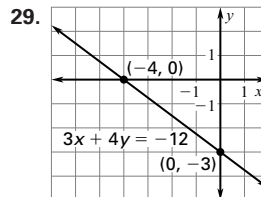
57.  $s > 205.5$ ;  $j \leq 262.5$ ;  $s + j > 465.0$ ;



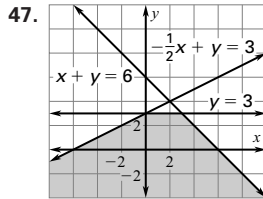
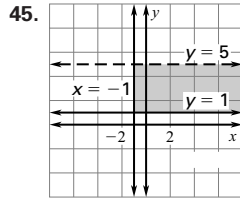
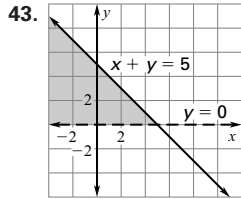
- 3.3 MIXED REVIEW (p. 162)** 67. 27 69. -13 71. relatively no correlation  
 73.  $(\frac{58}{57}, -\frac{128}{57})$  75. no solution 77.  $(-8, 2)$

- 3.4 PRACTICE (pp. 166–167)** 5. Minimum is 0; maximum is 38. 7. max of 31 at  $(17, 3)$ ; min of -20 at  $(0, 20)$   
 9. min of -40 at  $(0, 40)$ ; max of 40 at  $(40, 0)$  11. min of 10 at  $(2, 1)$ ; no max—feasible region is unbounded.  
 13. min of 6 at  $(2, 1)$ ; max of 29 at  $(5, 6)$  15. min of 0 at  $(0, 0)$ ; max of 740 at  $(60, 20)$  17. no min, since feasible region is unbounded; max of 132 at  $(15, 12)$  19. min of 6 at  $(0, 2)$ ; max of 29 at  $(5, 3)$  21. Make 37.5 gallons of Orangeade and 31.25 gallons of Berry-fruity for a profit of \$31.25. 23. Make 14 jars of tomato sauce and 4 jars of salsa for a profit of \$34.

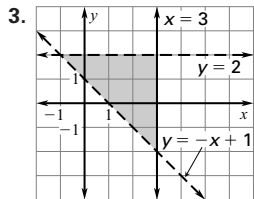
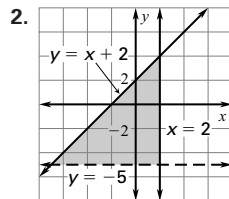
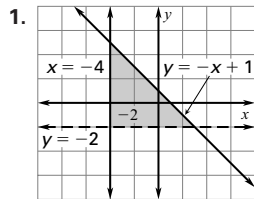
**3.4 MIXED REVIEW (p. 168)**



35. -7 37. -6 39. 35 41. 15

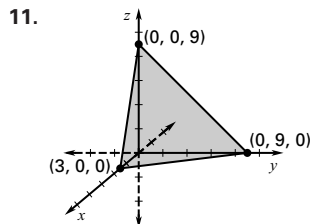
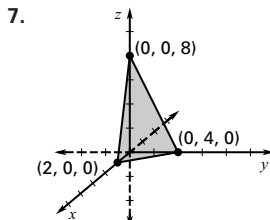
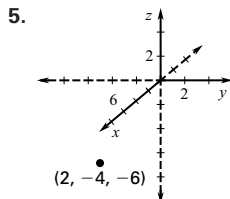


**QUIZ 2 (p. 169)**

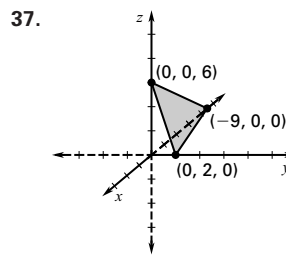
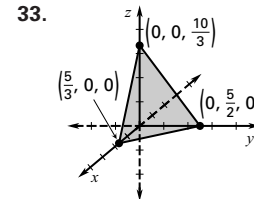
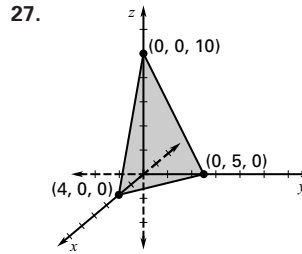
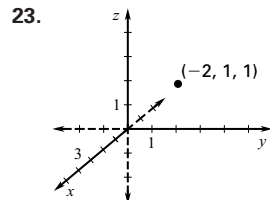
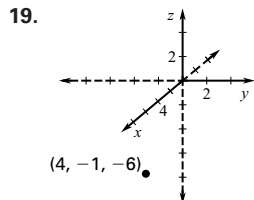


4. min of  $-18$  at  $(-4, 1)$ ; max of  $2$  at  $(-2, 6)$  5. min of  $19$  at  $(3, 2)$ ; max of  $24$  at  $(4, 2)$  6. min of  $0$  at  $(0, 0)$ ; max of  $70$  at  $(14, 0)$   
7. 6 small boxes and 6 large boxes

**3.5 PRACTICE (pp. 173–174)**



15.  $f(x, y) = -2x - \frac{1}{2}y - 4$ ;  $-17$   
17.  $C = 2.25r + 2.95p + 2.65$ ;  $\$37.50$



39.  $f(x, y) = \frac{2}{5}x + y + 3$ ;  $\frac{8}{5}$   
41.  $f(x, y) = -\frac{6}{5}x + \frac{3}{10}y + \frac{18}{5}$ ;  $12$   
43.  $f(x, y) = -\frac{1}{6}x - \frac{1}{4}y + \frac{1}{5}$ ;  $\frac{1}{2}$

45.  $f(x, y) = -\frac{1}{9}x + \frac{2}{3}y - \frac{4}{3}$ ;  $\frac{121}{18}$  47.  $60$

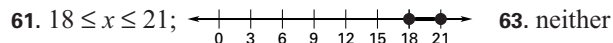
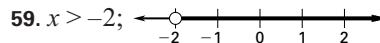
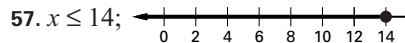
49.  $C = 1.5n + p + 16$ ; Sample answer:

Price of Pottery	Number of Colors				
	1	2	3	4	5
\$8	\$22.50	\$27.00	\$28.50	\$30.00	\$31.50
\$18	\$35.50	\$37.00	\$38.50	\$40.00	\$41.50
\$28	\$45.50	\$47.00	\$48.50	\$50.00	\$51.50
\$38	\$55.50	\$57.00	\$58.50	\$60.00	\$61.50
\$48	\$65.50	\$67.00	\$68.50	\$70.00	\$71.50

51.  $C = 0.9e + 0.25s + 20$ ;  $\$29.70$ ; Sample answer:

Number of Express Bus Trips	Number of Subway Trips				
	2	4	6	8	10
2	\$22.30	\$22.80	\$23.30	\$23.80	\$24.30
4	\$24.10	\$24.60	\$25.10	\$25.60	\$26.10
6	\$25.90	\$26.40	\$26.90	\$27.40	\$27.90
8	\$27.70	\$28.20	\$28.70	\$29.20	\$29.70
10	\$29.50	\$30.00	\$30.50	\$31.00	\$31.50

**3.5 MIXED REVIEW (p. 175)**

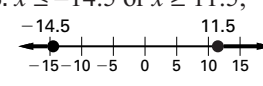
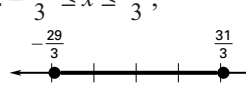


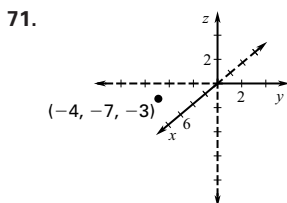
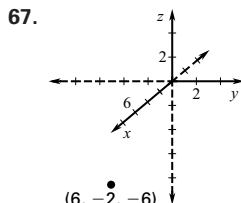
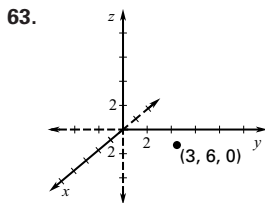
63. neither  
65. parallel 67.  $3.95r + 3.1p = 48.5$ ;  $r + p = 14$ ; buy 6 red oak boards and 8 poplar boards.

**TECHNOLOGY ACTIVITY 3.5 (p. 176)** 1.  $-14$  3.  $0.4$  5.  $21.6$

- 3.6 PRACTICE (pp. 181-183)** 5. no 7. no 9.  $(5, -1, 1)$   
 11. She should invest \$2000 in savings, \$12,000 in CDs, and \$6000 in bonds. 13.  $(2, 1, -1)$  15.  $(6, 0, -3)$   
 17.  $(1, -4, 2)$  19.  $(4, 3, -3)$  21.  $(-3, 2, 5)$  23.  $(7, 3, 5)$   
 25.  $(-\frac{2}{7}, 0, -\frac{29}{14})$  27.  $(2, 1, 2)$  29.  $(-1, 1, -1)$  31.  $(6, 6, -4)$   
 33.  $(\frac{128}{13}, -\frac{113}{26}, 13.5)$  35.  $f + s + t = 20; 5f + 3s + t = 68;$   
 $s = f + t$ ; there were 7 first-place finishers, 10 second-place finishers, and 3 third-place finishers. 37.  $s + l = 1300;$   
 $s + 2c = 1400; s + l + c = 1600$  39. Democrat: 50 million, Republican: 40 million, Other parties: 10 million  
 41. Sample answers are given.  
 a.  $x + y + z = 3; 2x - 2y + 5z = 23; 4x + 3z = 1$   
 b.  $x + y + z = 3; 2x - 2y + 5z = 23; 4x - 4y + 10z = 11$   
 c.  $x + y + z = 3; 2x - 2y + 5z = 23; 3x - y + 6z = 26$

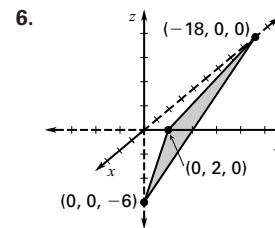
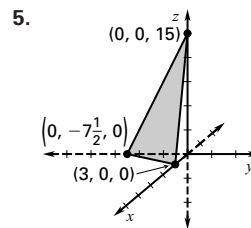
**3.6 MIXED REVIEW (p. 184)**

45. 11 47. 84 49. -16 51.  $\frac{3}{10}$  53.  $-\frac{9}{4}$   
 55.  $x \leq -14.5$  or  $x \geq 11.5;$  59.  $-\frac{29}{3} \leq x \leq \frac{31}{3};$   
  




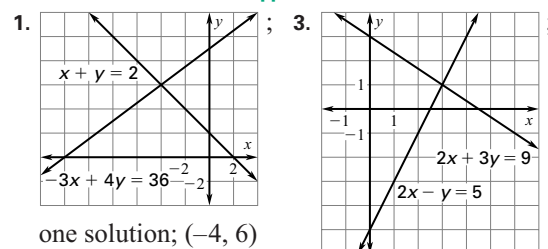
**QUIZ 3 (p. 184)**

- 1.
- 2.
- 3.
- 4.

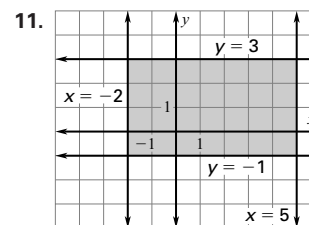
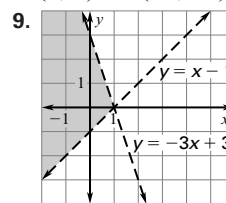


7.  $f(x, y) = \frac{1}{3}x - \frac{1}{6}y + 6; \frac{20}{3}$  8.  $f(x, y) = \frac{1}{2}x + y + 2; 4$   
 9.  $f(x, y) = 20x - 3y - 15; 66$  10.  $f(x, y) = \frac{1}{3}x - \frac{1}{6}y + 4; \frac{41}{6}$   
 11.  $(5, 0, 0)$  12.  $(2, -4, -1)$  13. no solutions  
 14. 3 string players, 10 woodwinds, and 2 percussionists were selected.

**CHAPTER 3 REVIEW (pp. 186-188)**



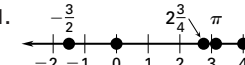
5.  $(0, 6)$  7.  $(-2, -1)$

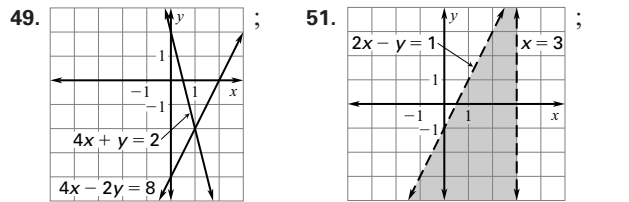
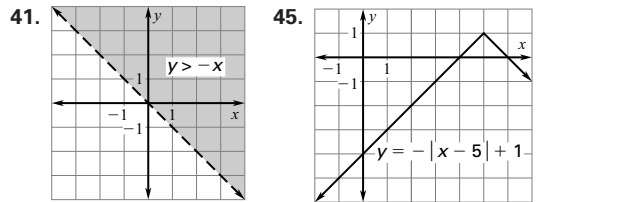
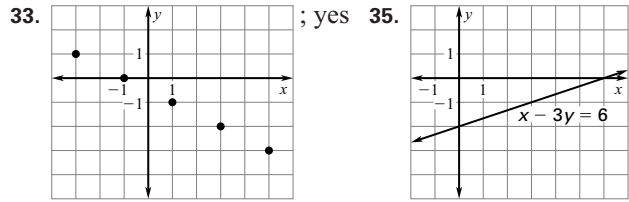
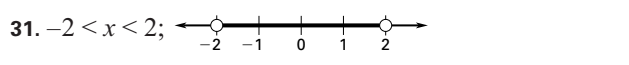
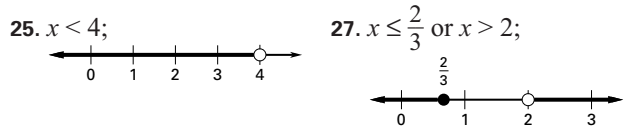


13. max of 50 at  $(10, 0)$ ; min of 0 at  $(0, 0)$   
 15. max of 38 at  $(4, 9)$ ; min of 5 at  $(1, 0)$

- 19.
21.  $(-\frac{1}{2}, 1, 2)$

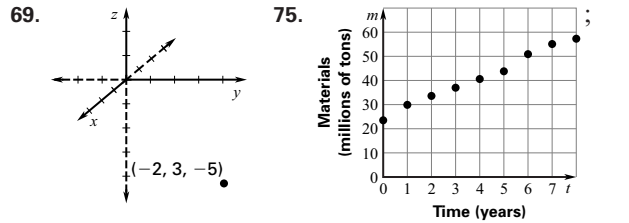
**CUMULATIVE PRACTICE (pp. 192-193)**

1.  ;  $-\frac{3}{2}, 0, 2\frac{3}{4}, \pi, 4$   
 5. distributive property 7. -22 9. 16 11.  $16a + 11$   
 13.  $n^2 + 2n$  15. -8 17. -4 19. -10, 9.5 21. 10 23.  $h = \frac{V}{\pi r^2}$



one solution at  $(1, -2)$  Solution region is to the right of  $2x - y = 1$  and to the left of  $x = 3$ .

53. perpendicular 55.  $y = -3x + 7$  57.  $y = \frac{1}{2}x + 1$   
59. 11 61. -4 63. 2 65.  $(4, -1)$  67.  $(0, -1, 5)$



Sample answer:  $y = 4.20t + 24.5$ ; about 83.3 million tons

77. Order 100 lb of vegetables and 50 lb of beef at a total cost of \$228.50.

**CHAPTER 4**

**SKILL REVIEW (p. 198)** 1. -1 2. -13 3. -14 4. 40  
5. commutative property of multiplication 6. commutative property of addition 7. distributive property 8.  $(15, 3)$   
9.  $(-3, -10)$  10.  $(\frac{112}{5}, -\frac{4}{5})$  11.  $(-2, -2)$

**4.1 PRACTICE (pp. 203-205)** 7.  $\begin{bmatrix} -7 & -12 & 12 \\ -5 & 12 & -10 \end{bmatrix}$   
9.  $\begin{bmatrix} -25 & -6 \\ -8 & 15 \end{bmatrix}$  11. not equal 13. not equal 15.  $\begin{bmatrix} 4 & 1 \\ -12 & 4 \end{bmatrix}$

17.  $\begin{bmatrix} -4 & -7 \\ 5 & 5 \end{bmatrix}$  19.  $\begin{bmatrix} 5.3 & 12.2 \\ 2.8 & 10.4 \end{bmatrix}$  21. Not possible;

the two matrices do not have the same dimensions.

23.  $\begin{bmatrix} 4 & 12 & -28 \\ 16 & 0 & -24 \end{bmatrix}$  25.  $\begin{bmatrix} 4 & 12 & 36 \\ -20 & 20 & 60 \\ -12 & -20 & -44 \end{bmatrix}$  27.  $\begin{bmatrix} -1 & -1 & -2 \\ \frac{1}{8} & \frac{3}{11} & -5 \end{bmatrix}$

29.  $\begin{bmatrix} 8 & -8 \\ 12 & -3 \\ -16 & 23 \end{bmatrix}$  31.  $\begin{bmatrix} 22 & -30 \\ -22 & -18 \end{bmatrix}$  33.  $x = -3, y = -8$

35.  $x = -2, y = 44$  37-41. Matrices can also be written with the rows and columns switched.

	Before		After	
	Wins	Losses	Wins	Losses
37. Atlanta Braves	59	29	47	27
Seattle Mariners	37	51	39	34
Chicago Cubs	48	39	42	34

	1996	
	No. of units shipped (in mil)	\$ Value (in mil)
39. CDs	20,779	\$268,441
Cassettes	15,299	\$122,329
Music Videos	45	\$916

	1997	
	No. of units shipped (in mil)	\$ Value (in mil)
CDs	26,277	\$344,697
Cassettes	17,799	\$144,645
Music Videos	70	\$1,260

41.  $\begin{bmatrix} 5,498 & \$76,256 \\ 2,500 & \$22,316 \\ 25 & \$344 \end{bmatrix}$  43.  $2V + M$ ;  $\begin{bmatrix} 146.8 & 148.4 \\ 146.1 & 147.8 \\ 146.8 & 148.4 \\ 146.2 & 148.1 \end{bmatrix}$

	Percent of Population in 1991		
	0-17	18-65	over 65
Northeast	4.8	12.6	2.8
Midwest	6.3	14.5	3.1
45. South	8.9	21.2	4.3
Mountain	1.6	3.4	0.6
Pacific	4.2	9.9	1.7

	Percent of Population in 2010		
	0-17	18-65	over 65
Northeast	4.2	11.4	2.5
Midwest	5.3	13.8	3.0
South	8.5	22.6	5.0
Mountain	1.7	4.2	0.9
Pacific	4.6	10.5	1.9

47. South: 18-65, over 65, Mountain: 0-17, 18-65, over 65, Pacific: 0-17, 18-65, over 65