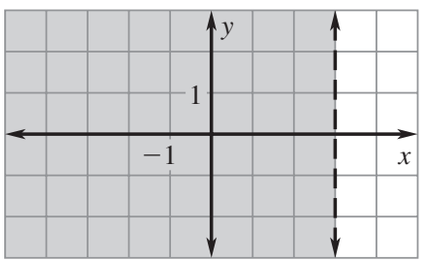
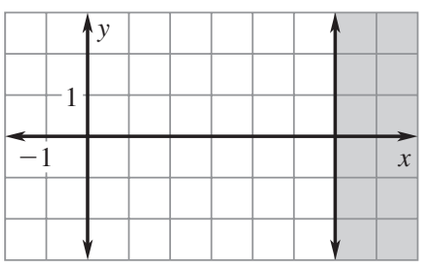
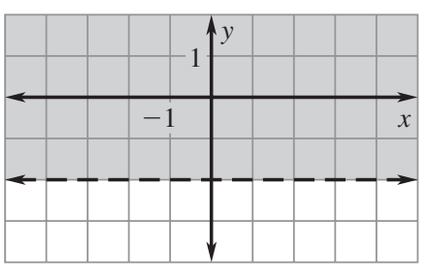
Answers for 2.8

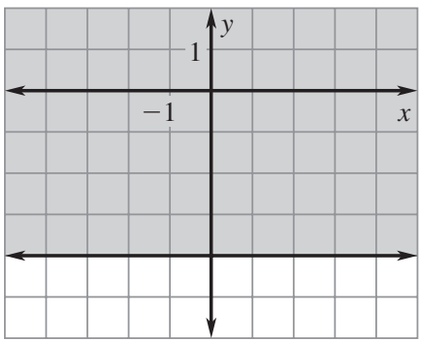
For use with pages 135–139

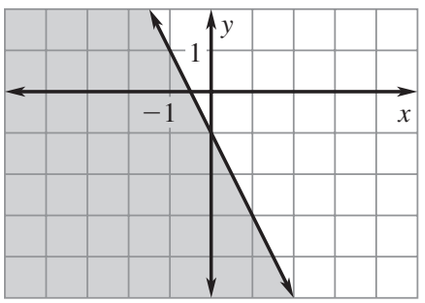
2.8 Skill Practice

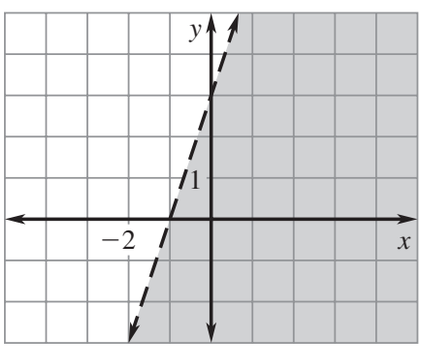
1. half-plane
2. *Sample answer:* The boundary line of an inequality is the same line as the linear equation.
3. solution, not a solution
4. not a solution, solution
5. solution, solution
6. solution, not a solution
7. 

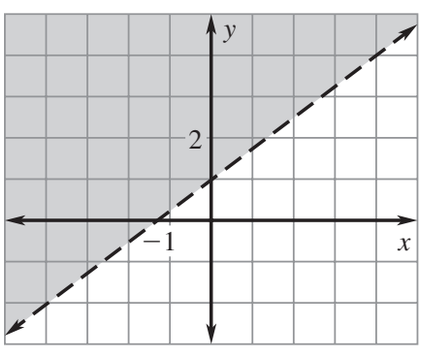
8. 

9. 

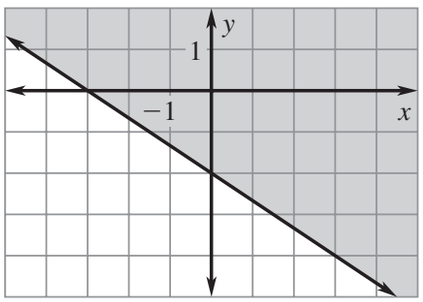
10. 

11. 

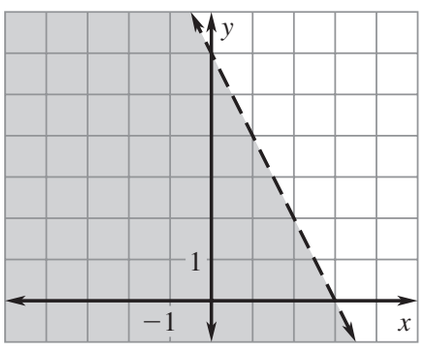
12. 

13. 

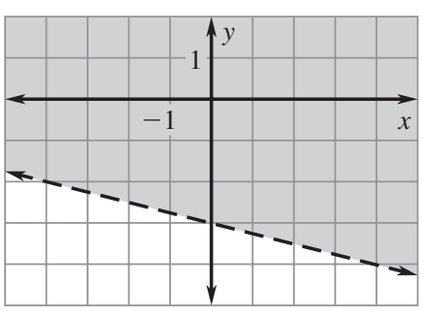
14.



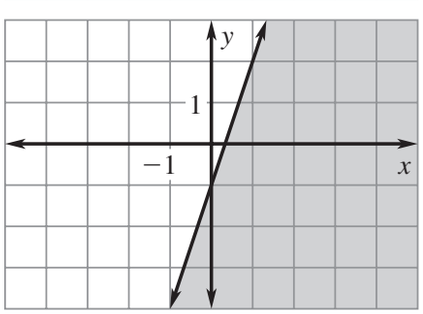
15.



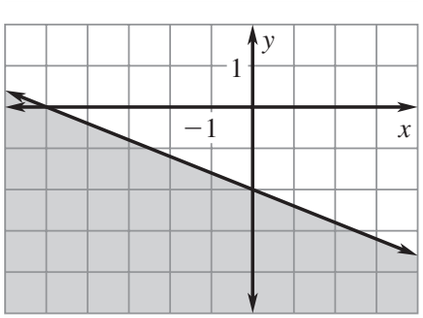
16.



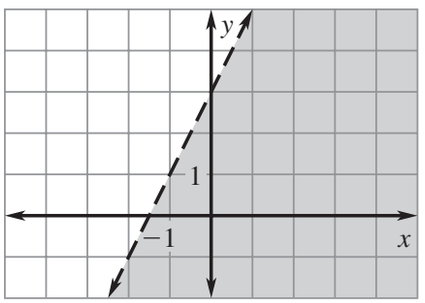
17.



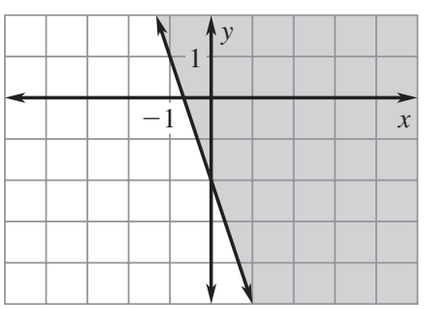
18.



19. The boundary line should be a dashed line.

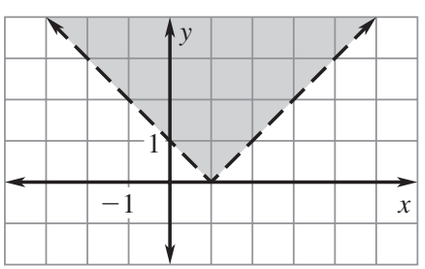


20. The other side of the boundary line should be shaded.

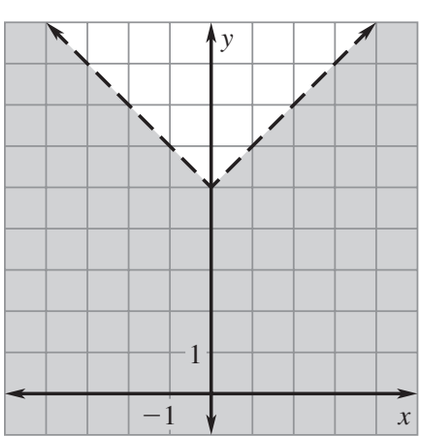


21. C

22.



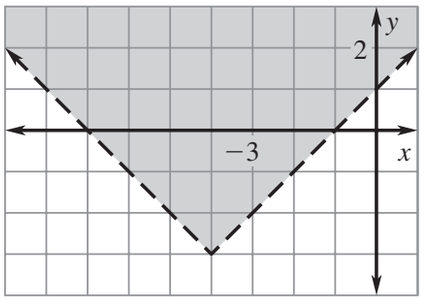
23.



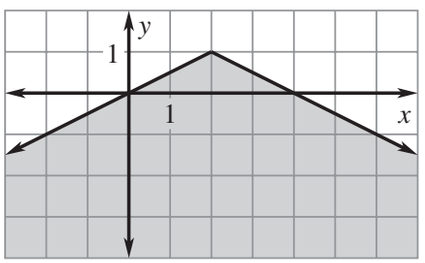
Answers for 2.8 *continued*

For use with pages 135–139

24.



25.



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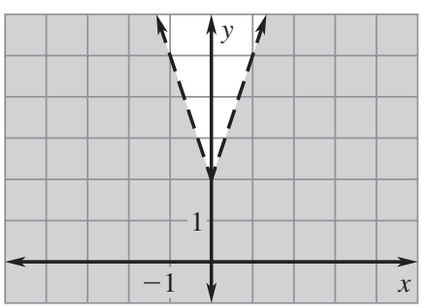
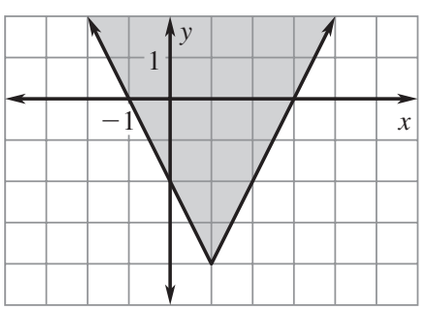


27.



28. D

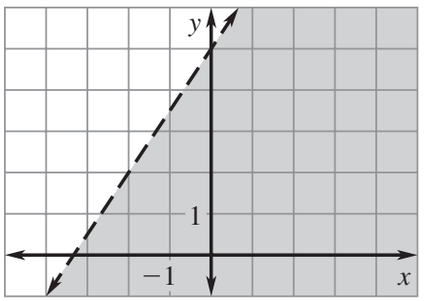
29. solution, not a solution

30. not a solution, solution

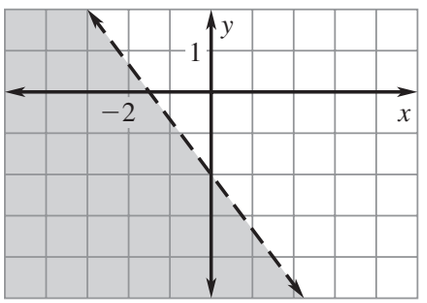
31. solution, not a solution

32. not a solution, solution

33.



34.



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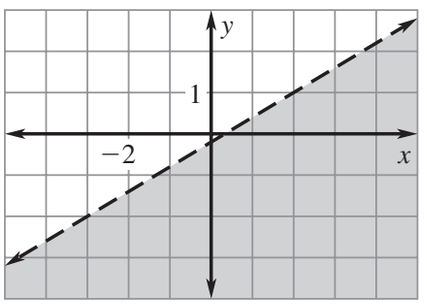
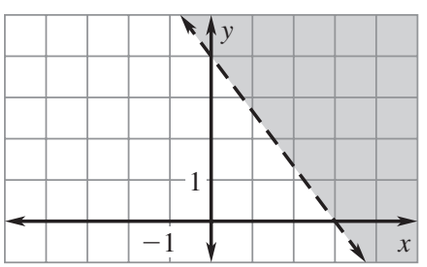
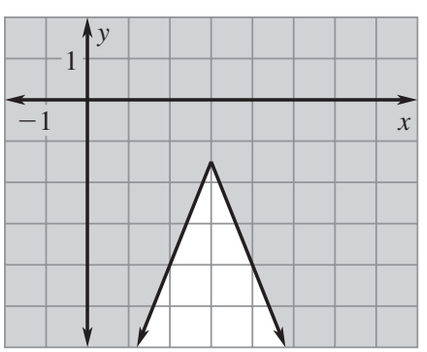


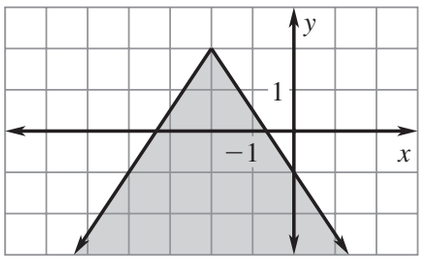
36.



37.



38.



39. *Sample answer:* $y > x + 3$

40. *Sample answer:* Testing a point on the boundary line would not tell you which side of the line the solutions are on.

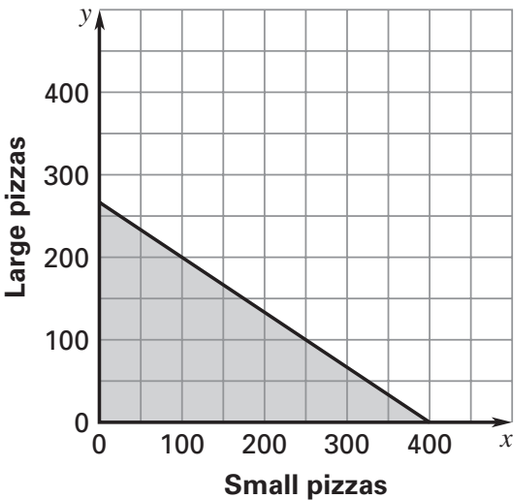
41. $y > -\frac{3}{5}x + 3$; pick two points on the boundary line to find the slope and then use the point-slope form of an equation to find the equation. The boundary line is dashed, so the inequality does not include points on the boundary. Then choose a point to determine which inequality sign to use. *Sample answer:* You and your sister want to spend at least $15 on your little brother's birthday. You want to buy him some race cars that cost $3 each and some building block sets that cost $5 each.

42. *Sample answer:* $x > |y - 9| + 5$; I chose a point on the graph and found another inequality that opened horizontally and had a vertex of the point I chose.

2.8 Problem Solving

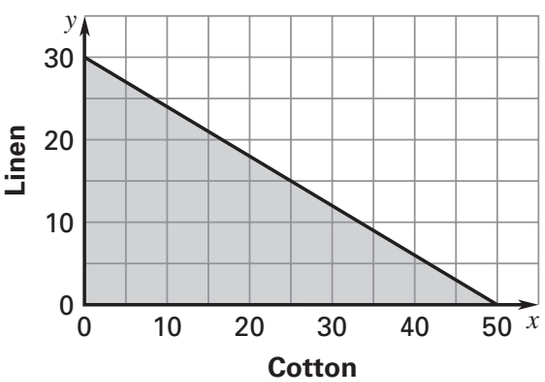
43. $0.03x + 0.06y \leq 20$

44. $12x + 18y \leq 4800$



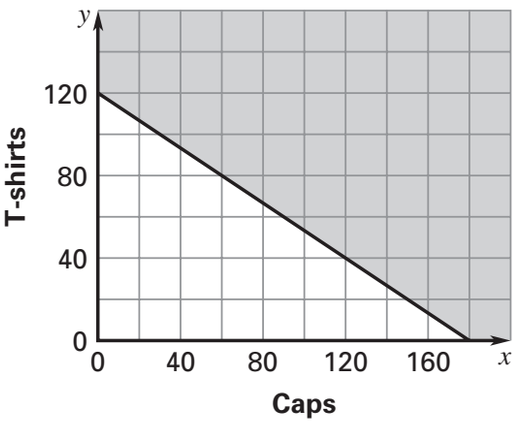
Sample answer: 12 large and 382 small, 120 large and 220 small, 0 large and 400 small

45. $1.5x + 2.5y \leq 75$



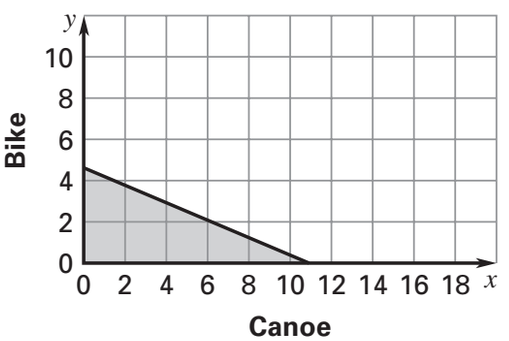
$y \leq 15.6$ yd

46. $15x + 10y \geq 1800$



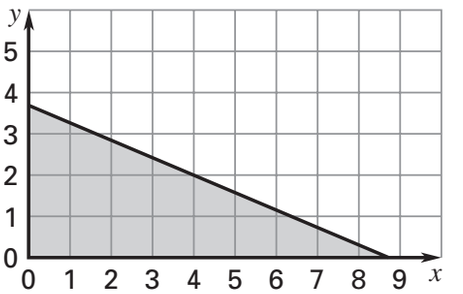
You would have to take the shirt sales, $15x$, times 0.4 and the cap sales, $10y$, times 0.3. The total sales, 1800, would change to a total of 600.

47. a. $11x + 26y \leq 120$



b. *Sample answer*: 2 days canoeing and 5 days biking, 3 days canoeing and 2 days biking, 2 days canoeing and 2 days biking

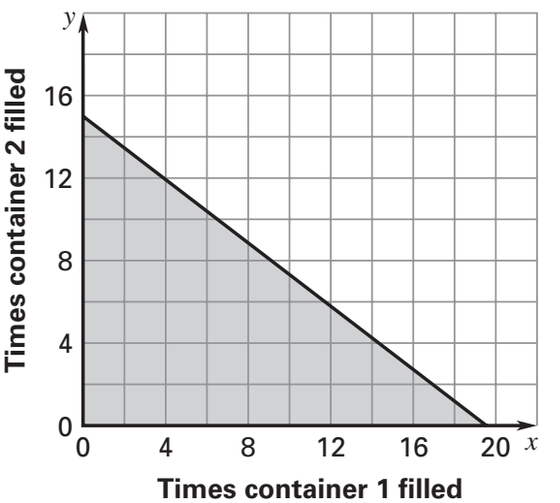
c. $11x + 26y \leq 96$



Sample answer: 1 day canoeing and 3 days biking, 4 days canoeing and 2 days biking, 2 days canoeing and 2 days biking

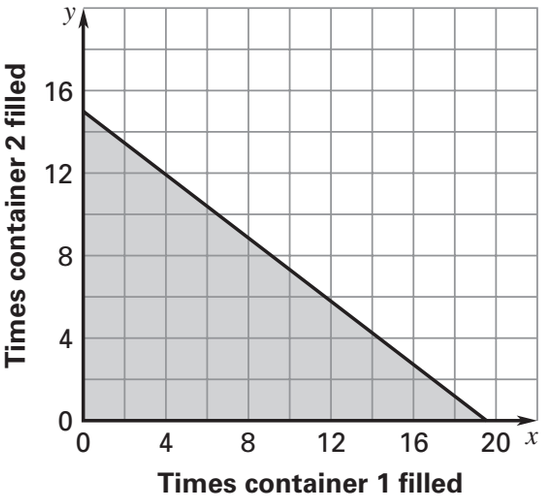
48. a. about 48.3 in.^{3}, about 62.8 in.^{3}, about 942 in.^{3}

b. $48.3x + 62.8y \leq 942$



c. about 0.209 gal, about 0.272 gal, about 4.08 gal; $0.209x + 0.272y \leq 4.08$

48. d.



The graphs are identical. *Sample answer:* Converting the volume does not change the number of times each container must be filled.

49. a. no

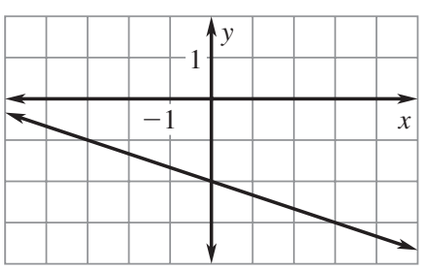
b. $d > \frac{5}{3}h$

2.8 Mixed Review

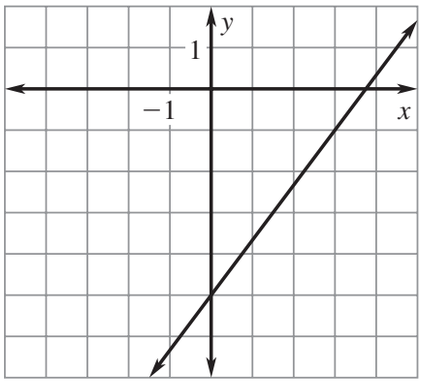
50. $y = 4x + 11$

51. $y = -15x + 60$

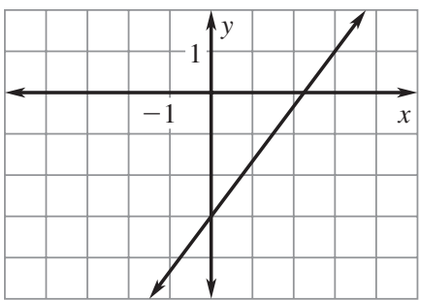
52.



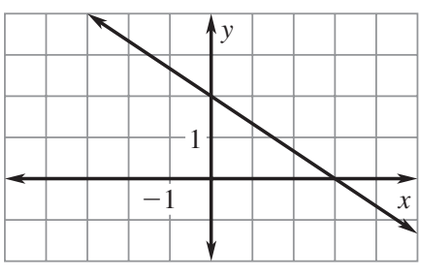
53.



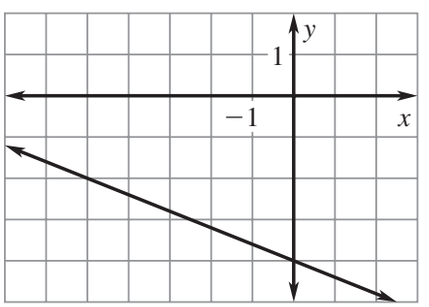
54.



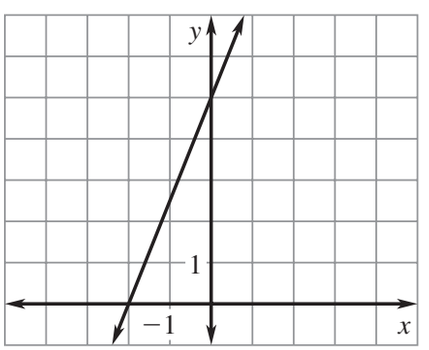
55.



56.



57.



58. $y = \frac{4}{5}x - 10$

59. $y = -3x + 16$

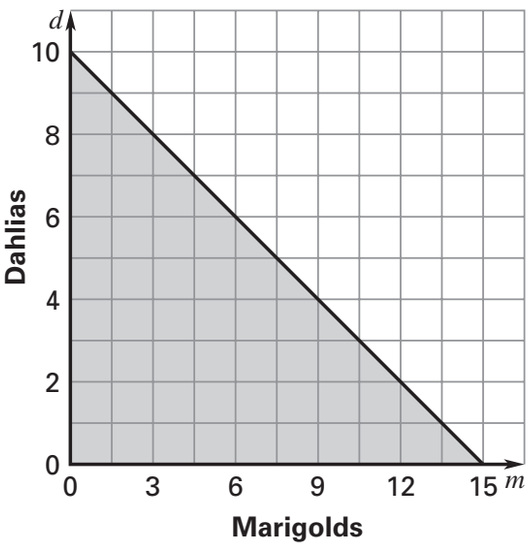
60. $y = \frac{6}{5}x + 2$

61. $y = -\frac{5}{3}x + \frac{17}{3}$

2.5–2.8 Mixed Review of Problem Solving

1. a. $2m + 3d \leq 30$

b.



c. 7 marigolds

2. a. $y = -\frac{40}{21}|x - 12.6| + 24$

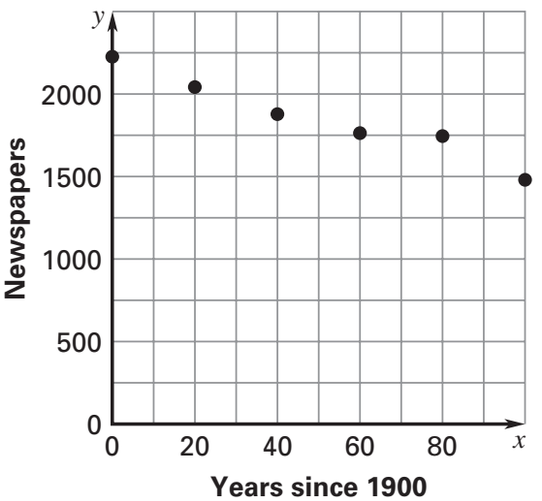
b. $y = -\frac{40}{21}|x| + 24$; 25.2 ft

3. Approximately no correlation; the points show no obvious pattern.

4. *Sample answer:* $y < 3x + 4$

5. Yes; all of the ratios of y to x are constant.

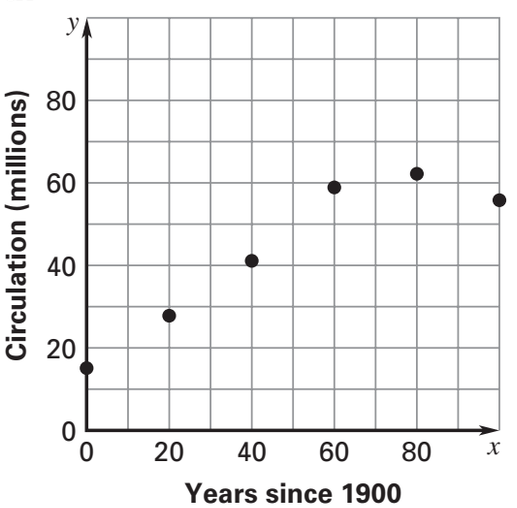
6. a.



b. *Sample answer:* $y = -6.766x + 2193.95$

c. 1382 daily newspapers

d.



No; the data points seem to be leveling off after 1960 instead of increasing linearly.

7. \$180;