MODULE 12 Modeling with Linear Systems

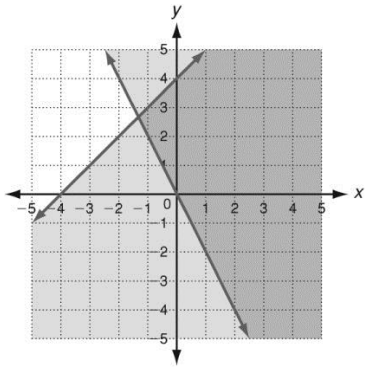
LESSON 12-1

Practice and Problem Solving: A/B

1. apple: $1.50, pear $1.25
2. lemonade: $1.57, iced tea: $1.82
3. $y = 8x + 50$
4. $y = 10x + 30$
5. The campgrounds will both charge $130 for 10 campers.
6. $C_1(n) = 2n + 4$, $C_2(n) = 2.5n + 2$
7. The functions represent the rates charged by 2 different dog walkers. The variable represents the number of dogs.
8. Yes

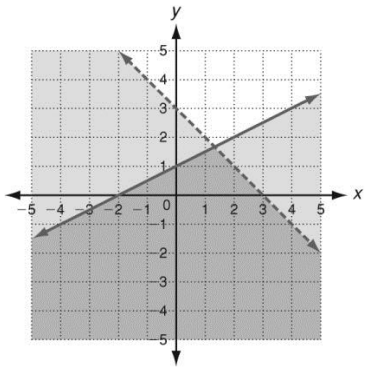
LESSON 12-2

Practice and Problem Solving: A/B

1. no
2. yes
3. no
4. 

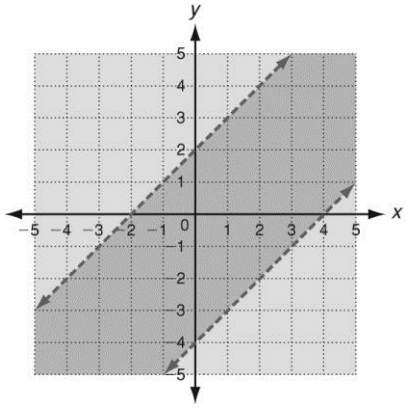
   a. (0, 3) and (3, −2)

   b. (−2, 0) and (−4, 3)

5. 

a. (0, 0) and (–2, 0)

b. (3, 0) and (2, 3)

6. 

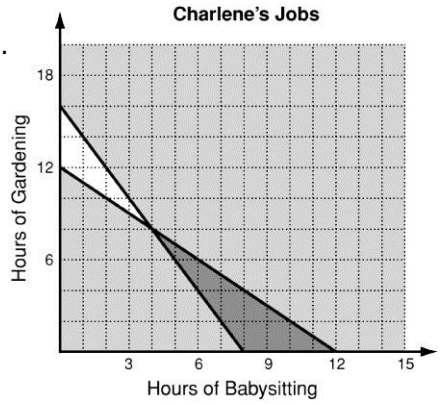
a. (0, 0) and (–2, –2)

b. (–3, 3) and (4, 0)

7. a. x = babysitting hours,

y = gardening hours,

$$\begin{cases} x + y \le 12 \\ 10x + 5y \ge 80 \end{cases}$$

b. 

c. Any combination of hours represented by the ordered pairs in the solution region.

d. 6 h babysitting, 4 h gardening;
8 h babysitting, 2 h gardening

LESSON 12-3

Practice and Problem Solving: A/B

1. $s + c = 12$; $12s + 10.5c = 138$; 8 steak, 4 chicken
2. $c + l = 9$; $3c + 2l = 23$; 5 couches, 4 loveseats
3. $a + s = 89$; $5a + 3s = 371$; 52 adults, 37 students
4. $q + d = 110$; $0.25q + 0.10d = 20.30$; 62 quarters, 48 dimes
5. $t + c \geq 16$; $25t + 15c \leq 285$; solution is all the points in the overlap region; 4 tables, 12 chairs