EXERCISE SET 4.4

a

1. Determine whether $(1, -2, 3)$ is a
   solution of the system
   $$x + y + z = 2,$$
   $$x - 2y - z = 2,$$
   $$3x + 2y + z = 2.$$

2. Determine whether $(2, -1, -2)$ is a
   solution of the system
   $$x + y - 2z = 5,$$
   $$2x - y - z = 7,$$
   $$-x - 2y + 3z = 6.$$

b Solve.

3. $x + y + z = 6,$
   $2x - y + 3z = 9,$
   $-x + 2y + 2z = 9$

4. $2x - y + z = 10,$
   $4x + 2y - 3z = 10,$
   $x - 3y + 2z = 8$

5. $2x - y - 3z = -1,$
   $2x - y + z = -9,$
   $x + 2y - 4z = 17$

6. $x - y + z = 6,$
   $2x + 3y + 2z = 2,$
   $3x + 5y + 4z = 4$

7. $2x - 3y + z = 5,$
   $x + 3y + 8z = 22,$
   $3x - y + 2z = 12$

8. $6x - 4y + 5z = 31,$
   $5x + 2y + 2z = 13,$
   $x + y + z = 2$

9. $3a - 2b + 7c = 13,$
   $a + 8b - 6c = -47,$
   $7a - 9b - 9c = -3$

10. $x + y + z = 0,$
    $2x + 3y + 2z = -3,$
    $-x + 2y - 3z = -1$

11. $2x + 3y + z = 17,$
    $x - 3y + 2z = -8,$
    $5x - 2y + 3z = 5$

12. $2x + y - 3z = -4,$
    $4x - 2y + z = 9,$
    $3x + 5y - 2z = 5$

13. $2x + y + z = -2,$
    $2x - y + 3z = 6,$
    $3x - 5y + 4z = 7$

14. $2x + y + 2z = 11,$
    $3x + 2y + 2z = 8,$
    $x + 4y + 3z = 0$

15. $x - y + z = 4,$
    $5x + 2y - 3z = 2,$
    $3x - 7y + 4z = 8$

16. $2x + y + 2z = 3,$
    $x + 6y + 3z = 4,$
    $3x - 2y + z = 0$

17. $4x - y - z = 4,$
    $2x + y + z = -1,$
    $6x - 3y - 2z = 3$

EXERCISE SET 4.5

a Solve.

1. The sum of three numbers is 5. The first number minus the second plus the third is 1. The first minus the third is three more than the second. Find the numbers.

2. The sum of three numbers is 26. Twice the first minus the second is two less than the third. The third is the second minus three times the first. Find the numbers.

3. In triangle *ABC*, the measure of angle *B* is 2° more than three times the measure of angle *A*. The measure of angle *C* is 8° more than the measure of angle *A*. Find the angle measures.

4. In triangle *ABC*, the measure of angle *B* is three times the measure of angle *A*. The measure of angle *C* is 30° greater than the measure of angle *A*. Find the angle measures.

5. In a recent year, companies spent a total of $84.8 billion on newspaper, television, and radio ads. The total amount spent on television and radio ads was only $2.6 billion more than the amount spent on newspaper ads alone. The amount spent on newspaper ads was $5.1 billion more than what was spent on television ads. How much was spent on each form of advertising? (*Hint:* Let the variables represent numbers of billions of dollars.)

6. A recent basic model of a particular automobile had a cost of $12,685. The basic model with the added features of automatic transmission and power door locks was $14,070. The basic model with just air conditioning (AC) and power door locks was $13,580. A basic model with just AC and automatic transmission was $13,925. What was the individual cost of each of the three options?