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**Additional Exercises 5.2**
**Form I**
Solving Systems of Linear equations by the Substitution Method

Solve each system by the substitution method. If there is no solution or infinitely many solutions, so state. Use set notation to express solution sets.

1. $y = x + 3$
   $x + 2y = 18$
   1. _____

2. $2x - 2y = 2$
   $x = 3y + 5$
   2. _____

3. $3x - 2y = 9$
   $y = 2x - 5$
   3. _____

4. $2x - y = 15$
   $y = x - 5$
   4. _____

5. $3x + 3y = 12$
   $x = 4 - y$
   5. _____

6. $3x + y = 10$
   $5x - 2y = 2$
   6. _____

7. $x - 5y = 35$
   $4x + 2y = 8$
   7. _____

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8. $12x - 4y = 16$
$3x - y = -4$

8. _____

9. $5x + y = -10$
$2x - 6y = -4$

9. _____

10. $x + 8y = -56$
$-2x + 9y = -63$

10. _____

11. $6x + 4y = 12$
$2x - 2y = -14$

11. _____

12. $3x - 2y = 25$
$4x + 8y = -20$

12. _____

13. $2x + 3y = 9$
$3x + 2y = 1$

13. _____

14. $2x + y = 14$
$4x + 2y = -28$

14. _____

15. $x = 8 - 5y$
$x = 3y - 8$

15. _____

16. $y = 2x + 3$
$y = 4x + 7$

16. _____

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**Additional Exercises 5.2**
**Form II**
Solving Systems of Linear equations by the Substitution Method

Solve each system by the substitution method. If there is no solution or infinitely many solutions, so state. Use set notation to express solution sets.

1. $x = 1 - 6y$
   $2x + 8y = 6$
   1. _____

2. $y = 3x + 4$
   $5x - y = 4$
   2. _____

3. $6x - 2y = 14$
   $3x - y = 7$
   3. _____

4. $x + 5y = 18$
   $2x + 2y = 20$
   4. _____

5. $6x + y = -12$
   $5x + 2y = 4$
   5. _____

6. $9x - 3y = 3$
   $3x - y = 12$
   6. _____

7. $x + 7y = 1$
   $2x + 8y = 2$
   7. _____

8. $2x + y = 14$
   $6x - 3y = 18$
   8. _____

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9. $2x + y = 8$
$-3x + 2y = -19$

9. _____

10. $6x - y = -1$
$6x - 5y = -17$

10. _____

11. $5x - 10y = 6$
$x - y = 1$

11. _____

12. $7x + 15y = 12$
$x + 9y = 4$

12. _____

13. $x - \frac{3}{4}y = 3$
$-2x + \frac{3}{2}y = -5$

13. _____

14. $\frac{1}{4}x + \frac{1}{2}y = 5$
$4x - y = 26$

14. _____

15. $3x - 2y = 3$
$-\frac{4}{3}x + y = \frac{1}{3}$

15. _____

16. $3x + 6y = 3$
$2x + 8y = 22$

16. _____

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**Additional Exercises 5.2**
**Form III**
Solving Systems of Linear equations by the Substitution Method

Solve each system by the substitution method. If there is no solution or infinitely many solutions, so state. Use set notation to express solution sets.

1. $4x + 3y = 11$
   $y = 2x - 13$
   1. _____

2. $5x - 3y = 11$
   $x = 12 + 2y$
   2. _____

3. $y = 2x + 3$
   $y = 4x + 7$
   3. _____

4. $x = 5y - 35$
   $5x - 6y = -61$
   4. _____

5. $2x + y = 14$
   $4x + 2y = 28$
   5. _____

6. $5x + 5y = 0$
   $x - y = -4$
   6. _____

7. $x + 2y = 32$
   $3x - 5y = -14$
   7. _____

8. $4x - 12y = 15$
   $x - 3y = 4$
   8. _____

9. $6x + 4y = 12$
   $2x - 4y = -44$
   9. _____

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10. $x + 3y = -1$
$8x - 8y = 4$

10. _____

11. $15x - y = 14$
$3x - 4y = 18$

11. _____

12. $\frac{4}{5}x + \frac{1}{2}y = 6$
$3x + y = 19$

12. _____

13. $\frac{1}{3}x + \frac{1}{3}y = 0$
$x - y = 14$

13. _____

14. $\frac{1}{2}x - \frac{2}{3}y = -1$
$\frac{3}{7}x + y = 18$

14. _____

15. An electronic company kept comparative statistics on two products, A and B. For the years 1980 to 1988, the total number of Product A sold (in thousands) is given by the equation $y = 72x + 689$ where $x$ is the number of years since 1980. For the same time period, the total number of Product B sold (in thousands) is given by the equation $y = -30x + 434$, where $x$ is the number is years since 1980. Use the substitution method to solve the system and describe what the solution means.

15. _____

16. One number is 1 less than a second number. Twice the second number is 19 less than 5 times the first. Find the two numbers.

16. _____