Practice

Form G

Solving Systems Using Substitution

Solve each system by substitution. Check your solution.

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

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

3. $y = 2x - 10$
$2y = x - 8$

4. $2y = x + 1$
$-2x - y = 7$

5. $x + 2y = 14$
$y = 3x - 14$

6. $2x - 3y = 13$
$y = \frac{1}{2}x - \frac{7}{2}$

7. $-3x - 2y = 5.5$
$x + 3y = 7.5$

8. $6x - 4y = 54$
$-9x + 2y = -69$

9. $y = \frac{-x}{2} - 4$
$-2x - y = -5$

10. Writing How do you know that substitution gives the answer to a system of equations? Explain.

11. Reasoning With the substitution method, which variable should you solve for first? Explain.

12. Writing How can you use substitution method to solve a system of equations that does not have a variable with a coefficient of 1 or −1?

13. Writing When solving the system of equations $\begin{array}{l} 6y + 2x = 3 \\ 2x + y = 8 \end{array}$ using substitution, which variable will you solve for and which equation will you use to substitute into?

14. Reasoning Can you tell that there is no solution for a system by just looking at the equations? Explain and give an example.

15. If the difference in the side lengths of two squares is 10, and the sum of the side lengths is 18, what are the side lengths?

16. A shopper purchased 8 T-Shirts and 5 pairs pants for $220. The next day, he purchased 5 T-shirts and 1 pair of pants for $112. How much does each T-shirt and each pair of pants cost?

Practice (continued)　　　　　　　　　　　　　　　　　　　　　　　　　*Form G*

Solving Systems Using Substitution

17. A student bought 1 box of crayons and 5 reams of paper for $54. She bought 5 boxes of crayons and 3 reams of paper for $50. What is the cost of each box of crayons and each ream of paper?

18. Suppose you got 8 mangoes and 3 apples for $18 and 3 mangoes and 5 apples for $14.50. How much does each mango and each apple cost?

19. A shopper purchased 4 tables and 2 chairs for $200 and 2 tables and 7 chairs for $400. What is the cost of each table and each chair?

20. If the length of the rectangle is twice the width, and the perimeter of the rectangle is 30 cm, what is length and width of the rectangle?

21. The population of a city is 2,500. If the number of males is 240 more than the number of females, how many males and females are there in the city?

Solve each system by substitution. Tell whether the system has *one solution, infinitely many solutions,* or *no solution.*

22. $7x + 2y = -13$
　　$-3x - 8y = -23$

23. $x - 9y = -10$
　　$6x + y = -5$

24. $x = \dfrac{y}{4} + 1$
　　$y = 4x - 5$

25. $x - 2y - 1 = 0$
　　$y - 5x + 14 = 0$

26. $y = -8x - 37$
　　$x + 3y = 4$

27. $3x + 6y = 18$
　　$3y = -\dfrac{3}{2}x + 9$

28. $5x - 9y = 29$
　　$12x + y = 47$

29. $2x = 3y - 9$
　　$-3x + y = 10$

30. $5y = 7x + 22$
　　$x = -6y + 17$

31. $x = 6y + 16$
　　$9x - 2y = -12$

32. $4x - y - 4 = 0$
　　$3x + 2y - 14 = 0$

33. $x + 3y = -5$
　　$-2x - y = 5$