

EXERCISES**Writing About Mathematics**

1. Midori solved the equations in Example 2 by using the substitution method. Which equation do you think she would have solved for one of the variables? Explain your answer.
2. The following system can be solved by drawing a graph, by using the addition method, or by using the substitution method.

$$x + y = 1$$

$$5x + 10y = 8$$

- a. Which method do you think is the more efficient way of solving this system of equations? Explain why you chose this method.
- b. Which method do you think is the less efficient way of solving this system of equations? Explain why you chose this method.

Developing Skills

In 3–9, solve each problem algebraically, using two variables.

3. The sum of two numbers is 36. Their difference is 24. Find the numbers.
4. The sum of two numbers is 74. The larger number is 3 more than the smaller number. Find the numbers.
5. The sum of two numbers is 104. The larger number is 1 less than twice the smaller number. Find the numbers.
6. The difference between two numbers is 25. The larger exceeds 3 times the smaller by 4. Find the numbers.
7. If 5 times the smaller of two numbers is subtracted from twice the larger, the result is 16. If the larger is increased by 3 times the smaller, the result is 63. Find the numbers.
8. One number is 15 more than another. The sum of twice the larger and 3 times the smaller is 182. Find the numbers.
9. The sum of two numbers is 900. When 4% of the larger is added to 7% of the smaller, the sum is 48. Find the numbers.

Applying Skills

In 10–31, solve each problem algebraically using two variables.

10. The perimeter of a rectangle is 50 centimeters. The length is 9 centimeters more than the width. Find the length and the width of the rectangle.
11. A rectangle has a perimeter of 38 feet. The length is 1 foot less than 3 times the width. Find the dimensions of the rectangle.
12. Two angles are supplementary. The larger angle measures 120° more than the smaller. Find the degree measure of each angle.

13. Two angles are supplementary. The larger angle measures 15° less than twice the smaller. Find the degree measure of each angle.
14. Two angles are complementary. The measure of the larger angle is 30° more than the measure of the smaller angle. Find the degree measure of each angle.
15. The measure of the larger of two complementary angles is 6° less than twice the measure of the smaller angle. Find the degree measure of each angle.
16. In an isosceles triangle, each base angle measures 30° more than the vertex angle. Find the degree measures of the three angles of the triangle.
17. At a snack bar, 3 pretzels and 1 can of soda cost \$2.75. Two pretzels and 1 can of soda cost \$2.00. Find the cost of a pretzel and the cost of a can of soda.
18. On one day, 4 gardeners and 4 helpers earned \$360. On another day, working the same number of hours and at the same rate of pay, 5 gardeners and 6 helpers earned \$480. Each gardener receives the same pay for a day's work and each helper receives the same pay for a day's work. How much does a gardener and how much does a helper earn each day?
19. A baseball manager bought 4 bats and 9 balls for \$76.50. On another day, she bought 3 bats and 1 dozen balls at the same prices and paid \$81.00. How much did she pay for each bat and each ball?
20. Mrs. Black bought 2 pounds of veal and 3 pounds of pork, for which she paid \$20.00. Mr. Cook, paying the same prices, paid \$11.25 for 1 pound of veal and 2 pounds of pork. Find the price of a pound of veal and the price of a pound of pork.
21. One day, Mrs. Rubero paid \$18.70 for 4 kilograms of brown rice and 3 kilograms of basmati rice. Next day, Mrs. Leung paid \$13.30 for 3 kilograms of brown rice and 2 kilograms of basmati rice. If the prices were the same on each day, find the price per kilogram for each type of rice.
22. Tickets for a high school dance cost \$10 each if purchased in advance of the dance, but \$15 each if bought at the door. If 100 tickets were sold and \$1,200 was collected, how many tickets were sold in advance and how many were sold at the door?
23. A dealer sold 200 tennis racquets. Some were sold for \$33 each, and the rest were sold on sale for \$18 each. The total receipts from these sales were \$4,800. How many racquets did the dealer sell at \$18 each?
24. Mrs. Rinaldo changed a \$100 bill in a bank. She received \$20 bills and \$10 bills. The number of \$20 bills was 2 more than the number of \$10 bills. How many bills of each kind did she receive?
25. Linda spent \$4.50 for stamps to mail packages. Some were 39-cent stamps and the rest were 24-cent stamps. The number of 39-cent stamps was 3 less than the number of 24-cent stamps. How many stamps of each kind did Linda buy?
26. At the Savemore Supermarket, 3 pounds of squash and 2 pounds of eggplant cost \$2.85. The cost of 4 pounds of squash and 5 pounds of eggplant is \$5.41. What is the cost of one pound of squash, and what is the cost of one pound of eggplant?
27. One year, Roger Jackson and his wife Wilma together earned \$67,000. If Roger earned \$4,000 more than Wilma earned that year, how much did each earn?