

Use two equations in two variables to solve each problem.

- The sum of two numbers is 51 and their difference is 13. Find each of the numbers.
 $x = \text{greater number}$
 $y = \text{smaller number}$

$$\begin{array}{r} x + y = 51 \\ x - y = 13 \\ \hline 2x = 64 \\ x = 32 \end{array}$$

$$\begin{array}{r} (32) + y = 51 \\ y = 19 \end{array}$$
The two numbers are 32 and 19.
- The perimeter of a rectangle is 68 cm. The length is four cm more than the width. Find the dimensions of the rectangle.

$$\begin{array}{r} x + y = 64 \\ x = 32 \end{array}$$
- Mrs. Brook lacks 7 years from being five times as old as her son. Six years from now she will lack 3 years from being three times as old as her son is then. Find each of their ages.
- One number is five more than three times a smaller one. If four times the larger number is subtracted from twice the smaller one, the result is 0. Find each of the numbers.
- One number is four more than another number. The difference between five times the smaller number and six times the larger number is 5. Find each of the numbers.
- A certain two-digit number has a value that is three times the sum of its digits. The units digit is one more than three times the tens digit. Find the number.
- The cost of 5 boxes of envelopes and 5 boxes of note paper is \$25.95. Two boxes of envelopes and 6 boxes of note paper cost \$22.38. Find the cost of each box of envelopes and each box of note paper.
- In Colorado Creek, Darrell can row 24 km downstream in 6 hours or he can row 18 km upstream in the same amount of time. Find the rate he rows in still water and the rate of the current.
- If the temperature on a Celsius scale is divided by five it is equal to the reading on a Fahrenheit scale. Fifteen times the Fahrenheit reading is equal to three times the Celsius reading. Find the temperature on each scale.
- Candy worth \$0.95/kg was mixed with candy worth \$1.85/kg to produce a mixture worth \$1.45/kg. How many kilograms of each kind of candy were used to make 27 kg of the mixture?

Use two equations in two variables to solve each problem.

1. The sum of two numbers is 94 and their difference is 122. Find each of the numbers.

$$x = \text{greater number}$$

$$y = \text{lesser number}$$

$$x + y = 94$$

$$x - y = 122$$

$$\hline 2x = 216$$

$$(108) + y = 94$$

$$y = -14$$

The two numbers are 108 and -14.

2. The perimeter of a rectangle is 132 meters. The length is 2 m more than three times the width. Find the dimensions of the rectangle.

3. Mrs. Johnson is five times as old as her son. Three years ago she was eight times as old as her son was then. Find each of their ages.

4. The smaller of two numbers is nine less than five times the larger number. If four times the smaller number is subtracted from 7, the result is 43. Find each of the numbers.

5. One number is five more than three times a second number. If 10 is added to -2 times the first number, the result is 30. Find each of the numbers.

6. The value of a certain two-digit number is four less than six times the sum of its digits. If the digits of the number are reversed, the resulting number is nine less than the original number. Find the number.

7. The cost of 10 oranges and 5 apples is \$3.35. Twenty-four oranges and 12 apples cost \$8.04. Find the cost of each orange and each apple.

8. Bill flew his small airplane 459 km in $4\frac{1}{2}$ hours flying with the wind. He flew 480 km against the wind in 6 hours. Find the rate at which he flew in still air and the rate of the wind.

9. If the temperature on a Fahrenheit scale is multiplied by three and subtracted from eight times the reading on a Celsius scale, the result is 34. Two times the Celsius reading plus the Fahrenheit reading is 222. Find the temperature on each scale.

10. A 9% solution of sulfuric acid was mixed with a 30% solution of sulfuric acid to produce an 18% solution. How much 9% solution and how much 30% solution were used to make 21 L of 18% solution?