

Example 1

Just as there are variations in the vocabulary used in English sentences, there may be alternative ways to write an equation.

The sum of the lengths of two adjacent sides of a rectangle is 15.

Using one variable: If x = the length, then the width = $15 - x$, so $x + (15 - x) = 15$

Using two variables: $l + w = 15$, where l is the length and w is the width.

Example 2

Equations are easier to use if the variable is defined for the reader.

a) A collection of quarters, dimes and nickels is worth \$6.00. Let q = quarters, d = dimes, and n = nickels.

$$0.25q + 0.10d + 0.05n = 6.00$$

b) The cost of cell phone calls priced at 5¢ per minute. Let c = cost, m = minutes.

$$c = 0.05m$$

Problems

Write an equation using one variable or a system of equations. Do NOT solve your equations.

1. A rectangle is three times as long as it is wide. Its perimeter is 36. Find each side length.
2. A rectangle is twice as long as it is wide. Its area is 72. Find each side length.
3. The sum of two consecutive odd integers is 76. Find the numbers.
4. Nancy started the year with \$425 in the bank and is saving \$25 a week. Seamus started with \$875 and is spending \$15 a week. When will they both have the same amount of money in the bank?
5. Oliver earns \$50 a day and \$7.50 for each package he processes at Company A. His paycheck on his first day was \$140. How many packages did he process?
6. Dustin has a collection of quarters and pennies. The total value is \$4.65. There are 33 coins. How many quarters and pennies does he have?
7. A one pound mixture of raisins and peanuts cost \$7.50. The raisins cost \$3.25 a pound and the peanuts cost \$5.75 a pound. How much of each ingredient is in the mixture?
8. An adult ticket at an amusement park costs \$24.95 and a child's ticket costs \$15.95. A group of 10 people paid \$186.50 to enter the park. How many were adults?
9. Katy weighs 105 pounds and is gaining 2 pounds a month. James weighs 175 pounds and is losing 3 pounds a month. When will they weigh the same?
10. Holmes Junior High has x students. Harper Middle School has 125 fewer students than Holmes. When the two schools are merged there will be 809 students. How many students attend each school?