Measurement Units and Perimeter

To build or make something, we must have the correct materials before we can start creating. To build a fence, we would buy a length of fencing in feet. To cover a floor in a new house, we would buy an area of carpet in square feet. To make a patio, we would buy a volume of cement in cubic yards.

Perimeter is the distance around an object. We'll examine the perimeter of a rectangle and other objects made of line segments.

Length, Area, and Volume Units

Perimeter of a Rectangle

Perimeter of Triangles and Quadrilaterals

Length, Area, and Volume Units

Linear units measure **length**. The length of twine would me measured in linear units. Linear units could be inches, feet, yards, miles, kilometers, meters, centimeters, and millimeters. An example would be: Mary cut 3 feet of twine to tie around the box.

Square units measure **area**. The area of a flag would be measured in square units. Square units could be square inches, square feet, square yards, square miles, square kilometers, square meters, square centimeters. Another way to write square inches would be inches^2. An example would be: John bought a flag that covered 6 square feet.

Cubic units measure **volume**. The volume of a concrete slab would be measured in cubic units. Cubic units could be cubic inches, cubic feet, cubic yards, cubic meters, cubic centimeters. Another way to write cubic yards would be yards^3. An example would be: Jeremy's dad bought and mixed 2 cubic yards of concrete to make a weighted base for his new basketball hoop.

Perimeter of a Rectangle

To find the **perimeter** of a rectangle you would add all sides. In this case you would add 8 + 14 + 8 + 14 which would give **44 inches.** A formula for this method would be **P = L + W + L + W**.
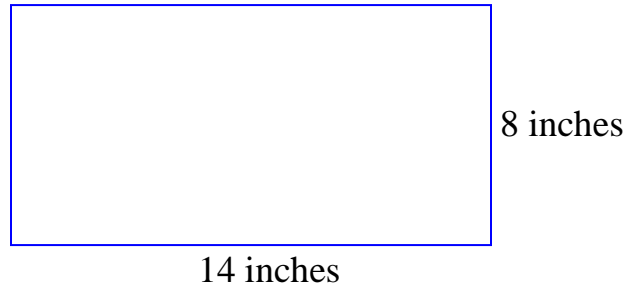
8 inches

14 inches

There is another way to find the **perimeter** for the rectangle.

P = (2 × 14) + (2 × 8)
P = 28 + 16
P = 44 inches
Formula: **P = (2 × L) + (2 × W)**

There is a third way to find the **perimeter** of the rectangle. Fill in the blanks.
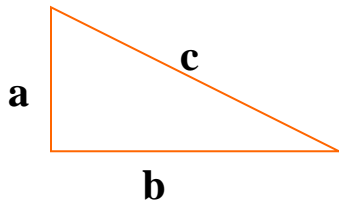
P = 2 × (4 + 8)
P = 2 × 22
P = 44 inches

Formula: **P = 2 × (L + W)**

Perimeter of Triangles and Quadrilaterals

To find the **perimeter** of a polygon you add all sides.

Complete the formula for determining the **perimeter of a triangle** where the length of its sides are represented with **a**, **b**, and **c**.

c

a

b

$P = a + b + \underline{\qquad}$

Solution: **P = a + b + c**

Study the formula for determining the **perimeter of a parallelogram** where the length of the longer side is represented by **b** and the length of the shorter side is represented by **a**.

a

b
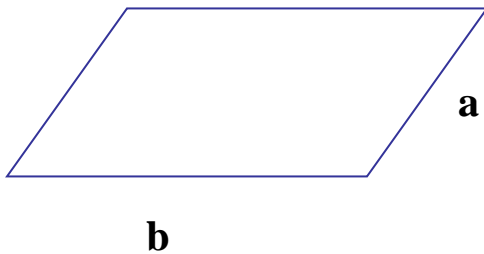
$P = b + a + b + a$

This formula can be rewritten as
$P = b + b + a + a$

which can be rewritten as
$P = 2 \times b + \underline{\qquad\qquad}$

Solution: **P = 2 × b + 2 × a**

Study the formula for determining the **perimeter of a square** where the length of one side is represented by **s**.

s

$P = s + s + s + s$

This formula can be rewritten as
$P = \underline{\qquad\qquad}$

Solution: **P = 4 × s**