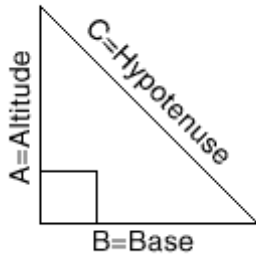


Perimeter Formulas -- Right Triangles



The right triangle is unique in that one of the sides is always perpendicular to the base of the triangle and the area calculation can be made using the existing dimensions. Another characteristic of the right triangle is that, if the lengths of two sides of the triangle are known, the length of the third side may be found. This is based on the Pythagorean theorem which states that the square of the length of the hypotenuse of a right triangle is equal to the sum of the squares of the length of the other two sides.

a = altitude, b = base, c = hypotenuse

$$\text{Pythagorean Theorem: } c^2 = a^2 + b^2$$

Therefore, using sqrt() to represent the square root function

$$\text{The length of side c} = \sqrt{a^2 + b^2}$$

$$\text{The length of side a} = \sqrt{c^2 - b^2}$$

$$\text{The length of side b} = \sqrt{c^2 - a^2}$$

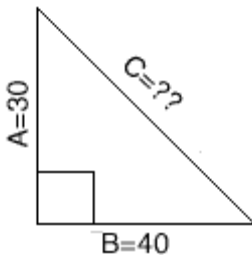
Example:

$$\text{The length of side c} = \sqrt{a^2 + b^2}$$

$$c = \sqrt{30^2 + 40^2}$$

$$c = \sqrt{900 + 1600} = \sqrt{2500}$$

$$c = 50$$



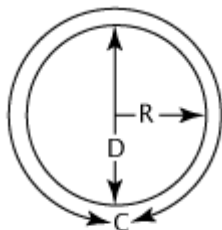
Perimeter Formulas -- Circles

Circumference (C) is equal to the distance around the outside of the circle.

Diameter (D) is the straight-line distance between two opposite points on the circumference, passing through the center.

Radius (R) is the distance from the center of the circle to a point on the circumference. The radius is equal to one-half the diameter of the circle.

Pi is equal to the circumference divided by the diameter. = 3.14159



$$C = \pi \times D$$

$$D = 2 \times R$$

$$\pi = \text{Pi} = 3.14159$$

$$\text{Circumference (C)} = \text{Pi} \times \text{diameter (D)}$$

$$\text{Diameter (D)} = \text{circumference (C)} / \text{Pi}$$

$$\text{Radius (r)} = \text{diameter (D)} / 2,$$

Example:

A circular lot has a diameter of 20 feet.

- What is the circumference of the lot?
 $C = \text{Pi} D$
 $C = 3.14159 \times 20 \text{ feet}$
 $C = 62.8318 \text{ feet}$
- What is the radius of the circle?
 $R = D / 2$

R = 20 feet / 2
R = 10 feet