

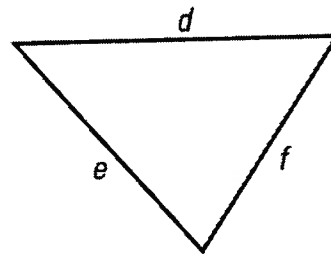
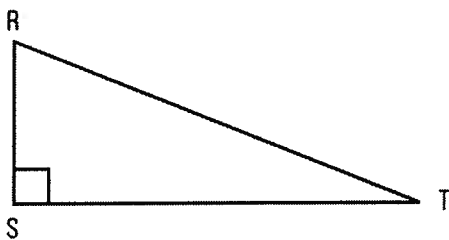
The Pythagorean Theorem can be used to find missing sides of _____ triangles. A right triangle is a triangle with one right angle. The side opposite the right angle is the longest side and is called the _____. The other two sides are called _____ (or, in some cases, arms).

Review

Each vertex of a triangle is labeled with an upper case letter, and each side is labeled either with the lower case letter corresponding to the opposite vertex or with the upper case letters of the vertices it connects.

Label the following triangles and the sides the triangles contain.

Consider $\triangle RST$.

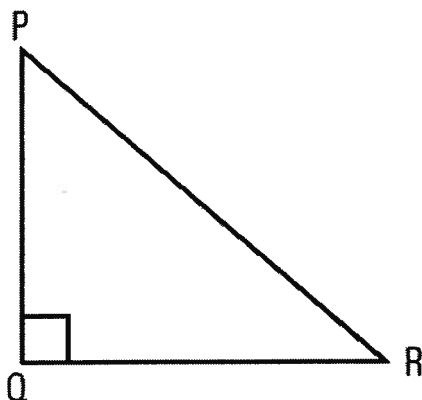


The Pythagorean Theorem

The Pythagorean Theorem states the relationship among the sides of a right triangle. Given a right triangle ABC with right angle C, the Pythagorean Theorem states the following.

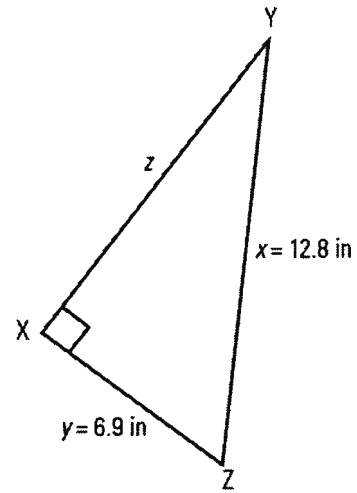
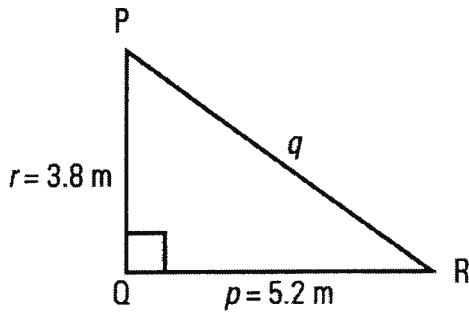
The general formula:

The Pythagorean Theorem can be written in different ways depending on how your triangles are labeled.



Example 1

Solve for the missing sides of each of the following triangles.



Example 2

A field is 120 m by 180 m. How much shorter is your route if you walk diagonally across the field rather than walking around the edge to the opposite corner?

Example 3

The construction plans for a ramp show that it rises 3.5 metres over a horizontal distance of 10.5 metres. How long will the ramp surface be?