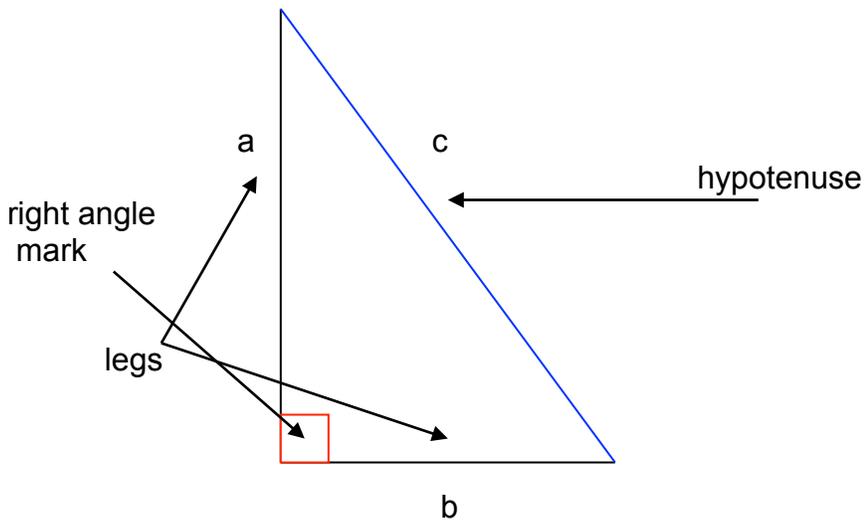


The Pythagorean Theorem is a formula used to find a missing side length of RIGHT triangles. It is used often in algebra, geometry and in the “real” world.



- 1) A right Δ is a Δ with a 90° angle. A small square in the corner is used to indicate that the angle is a right angle.
- 2) The sides that form or “touch” the right angle are called the legs. They are usually labeled a and b.
- 3) The side opposite or across from the right angle is called the hypotenuse. It is ALWAYS the longest side of a right triangle. The hypotenuse is labeled c.
- 4) The Pythagorean Theorem states that in any right Δ , the sum of the squares of the lengths of the legs is equal to the square of the length of the hypotenuse.

$$a^2 + b^2 = c^2$$

5) If you know 2 sides of any right triangle, you can solve the Pythagorean Theorem to find the length of the missing side. You just have to be careful to put the sides in the correct place in the formula.

6) **Converse of the Pythagorean Theorem** – If you have 3 sides of a triangle they can only create a right triangle IF $a^2 + b^2 = c^2$. Even if the triangle LOOKS like a right triangle you have to do $a^2 + b^2 = c^2$ to prove it. Make sure you put the longest side in as c.

7) **Pythagorean Triple** – is when the 3 sides of the right triangle (a, b, and c) are ALL whole numbers. If you memorize the common **Pythagorean Triples** then you wouldn't have to do the Pythagorean Theorem to find a missing side.

Ex: 3, 4, 5

6, 8, 10

5, 12, 13