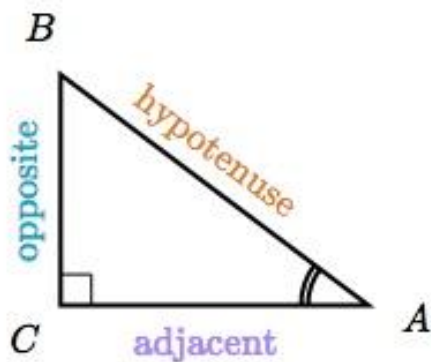


Lesson 1.1 The Pythagorean Theorem



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Benchmark(s):

9.3.3.4 Apply the Pythagorean Theorem and its converse to solve problems and logically justify results.

Essential Question(s):

How can I determine whether a triangle is acute, right, or obtuse algebraically?
What relationship exists between the sides in a right triangle?

Learning Target(s):

I can apply algebraic properties to solve an equation with squared variables.
I can differentiate between an acute, right, and obtuse triangle using the Pythagorean Theorem.
I can apply the Pythagorean Theorem to find a missing side length on a right triangle.

Vocabulary/Theorems:

Legs--The two shorter sides of a right triangle

Hypotenuse--The longest side of a right triangle; always across from the right angle

Opposite--Across from

Adjacent--Next to

Pythagorean Triple--A set of three whole numbers such that the smaller two squared, then added together equals the largest one squared

Pythagoras Got It Right

Ever heard of Pythagoras? He was a pretty famous guy who lived back in the B.C.s. Some say he was the first real mathematician (talk about a trend setter!), but that's something that's hard to prove. What isn't hard to prove is the Pythagorean Theorem, once of Pythagoras' greatest contributions to mathematics. Don't believe me? Try this quick, construction proof below and you'll be following in the steps of Pythagoras himself.

Much of the story of Pythagoras is legend, which means it can't be proven, but that it probably comes from some true aspects. Pythagoras started a school where many people followed in his footsteps, learning philosophy and mathematics. Another item to note here is that many cultures, including Babylonian and Chinese, knew the Pythagorean Theorem before Pythagoras was born. It is most likely named after him because of his or his students' work with making it popular, and helping to prove it in writing.

¹ Image, [Hypotenuse, opposite and adjacent lesson](https://www.khanacademy.org/search?page_search_query=hypotenuse), Khan Academy. Retrieved June 1, 2017, https://www.khanacademy.org/search?page_search_query=hypotenuse