

Lesson 2 Assessment

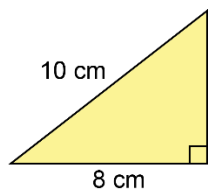
Applying the Pythagorean Theorem to Solve Problems

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Describes how to use the Pythagorean theorem

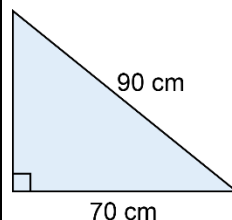
I can substitute the known side lengths into $a^2 + b^2 = c^2$, where a and b are the lengths of the shorter sides and c is the length of hypotenuse, to find the unknown length in a right triangle.

Uses Pythagorean triples to solve a problem



Since $10^2 - 8^2 = 36$ is a perfect square, the side lengths are a Pythagorean triple. The missing side length is 6 cm.

Uses the Pythagorean theorem to determine an unknown side length



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

$$a^2 + 70^2 = 90^2$$

$$a^2 + 4900 = 8100$$

$$a^2 = 8100 - 4900$$

$$a^2 = 3200$$

$$a = \sqrt{3200}$$

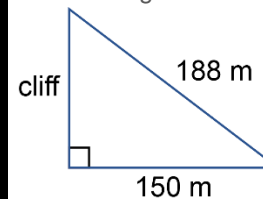
$$a \approx 56.6$$

The length of the missing side is about 56.6 cm.

Uses the Pythagorean theorem to solve problems involving an unknown side length in a right triangle

A surveyor measures the base of a vertical cliff to be 150 m away and the top of the cliff to be 188 m away. How high is the cliff?

Draw a diagram.



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

$$a^2 + 150^2 = 188^2$$

$$a^2 + 22\,500 = 35\,344$$

$$a^2 = 35\,344 - 22\,500$$

$$a^2 = 12\,844$$

$$a = \sqrt{12\,844}$$

$$a \approx 113.33$$

The height of the cliff is about 113.33 m.

Observations/Documentation