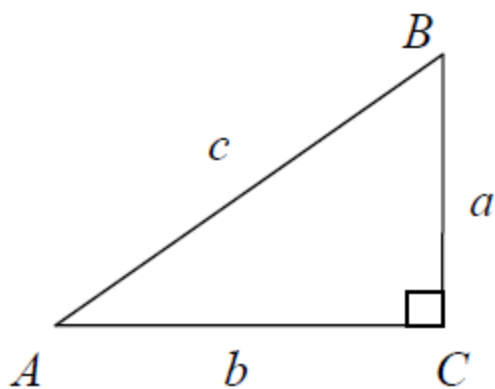


The Pythagorean Theorem

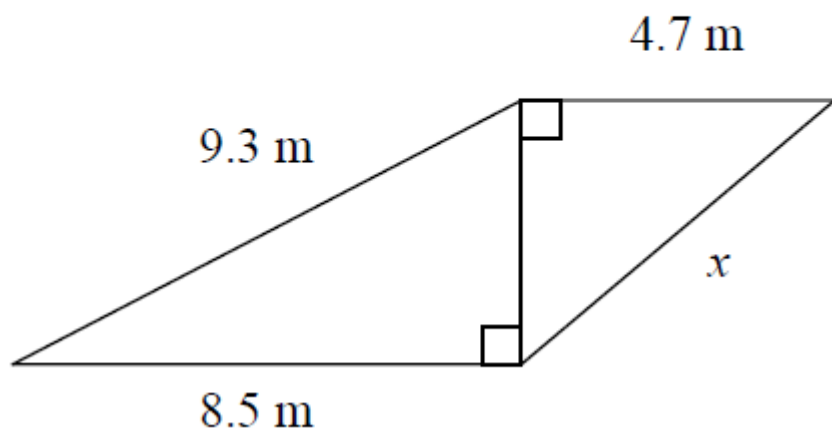
The theorem states that for a right-angle triangle ABC where c is the **hypotenuse** can be described by the formula

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



Example

Determine the length of x .

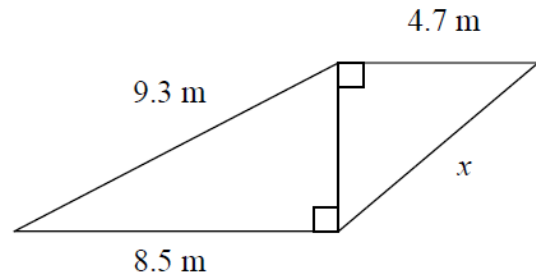


Example 3

Determine the length of x .

Answer:

This question requires that we use the Pythagorean Theorem twice. We use it first to find the side shared by both right-angle triangles. Then the theorem is used to find x .



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

$$8.5^2 + b^2 = 9.3^2$$

$$72.25 + b^2 = 86.49$$

$$b^2 = 86.49 - 72.25$$

$$b^2 = 14.24$$

$$b = \sqrt{14.24} = 3.8$$

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

$$4.7^2 + 3.8^2 = x^2$$

$$22.09 + 14.44 = x^2$$

$$36.53 = x^2$$

$$\sqrt{36.53} = x$$

$$x = 6.0$$

The length of x is 6.0 m.