

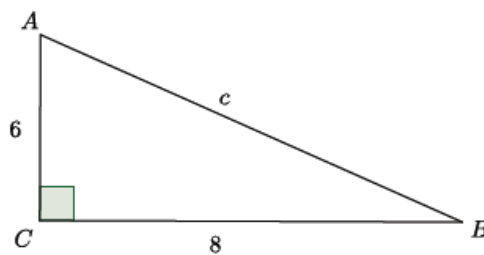
Lesson 15: Informal Proof of the Pythagorean Theorem

Classwork

Example 1

Now that we know what the Pythagorean theorem is, let's practice using it to find the length of a hypotenuse of a right triangle.

Determine the length of the hypotenuse of the right triangle.



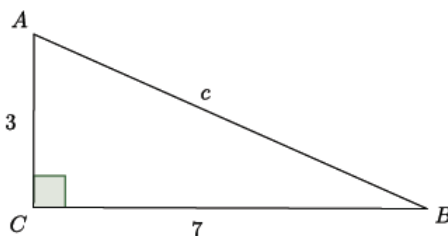
The Pythagorean theorem states that for right triangles $a^2 + b^2 = c^2$, where a and b are the legs and c is the hypotenuse. Then,

$$\begin{aligned}a^2 + b^2 &= c^2 \\6^2 + 8^2 &= c^2 \\36 + 64 &= c^2 \\100 &= c^2.\end{aligned}$$

Since we know that $100 = 10^2$, we can say that the hypotenuse $c = 10$.

Example 2

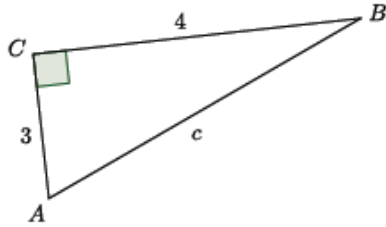
Determine the length of the hypotenuse of the right triangle.



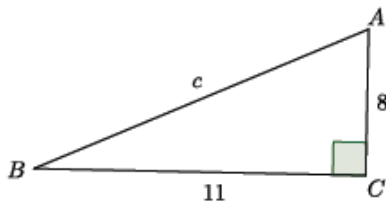
Exercises 1–5

For each of the exercises, determine the length of the hypotenuse of the right triangle shown. Note: Figures not drawn to scale.

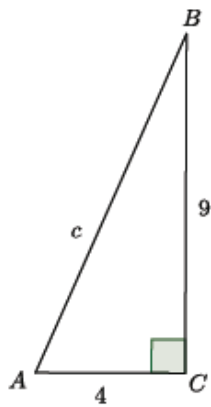
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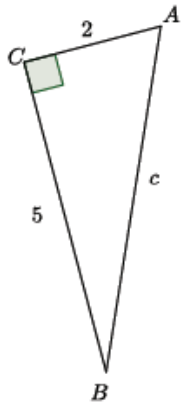
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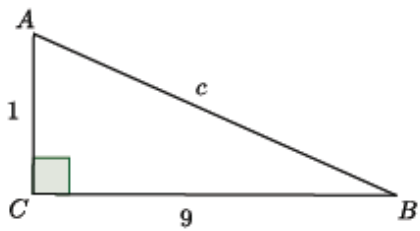
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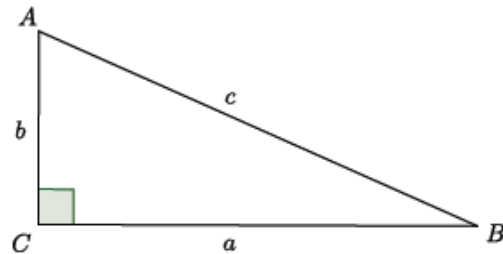


5.



Lesson Summary

Given a right triangle ABC with C being the vertex of the right angle, then the sides AC and BC are called the *legs* of $\triangle ABC$, and AB is called the *hypotenuse* of $\triangle ABC$.



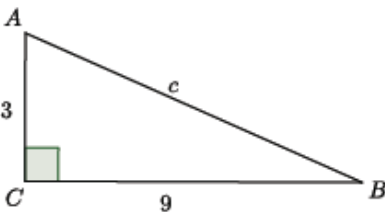
Take note of the fact that side a is opposite the angle A , side b is opposite the angle B , and side c is opposite the angle C .

The Pythagorean theorem states that for any right triangle, $a^2 + b^2 = c^2$.

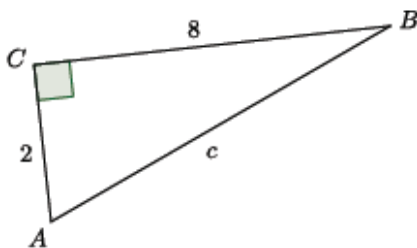
Problem Set

For each of the problems below, determine the length of the hypotenuse of the right triangle shown. Note: Figures not drawn to scale.

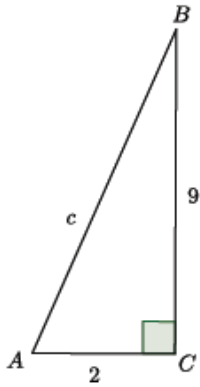
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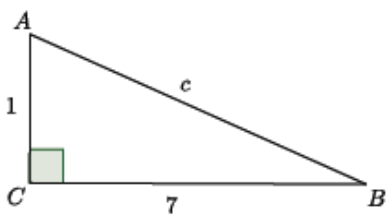
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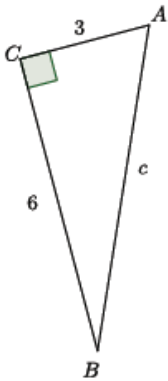
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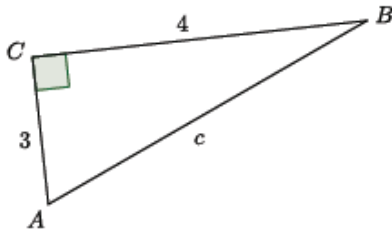
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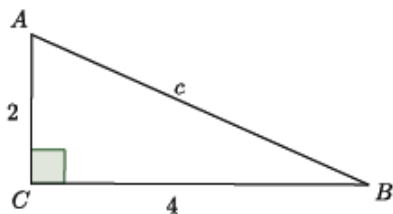
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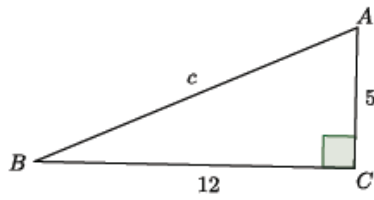
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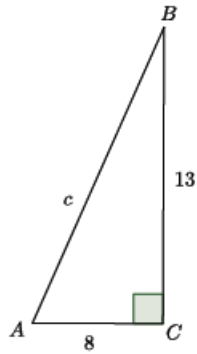
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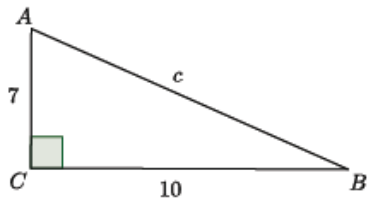
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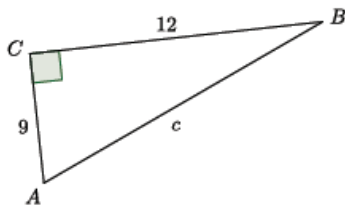
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