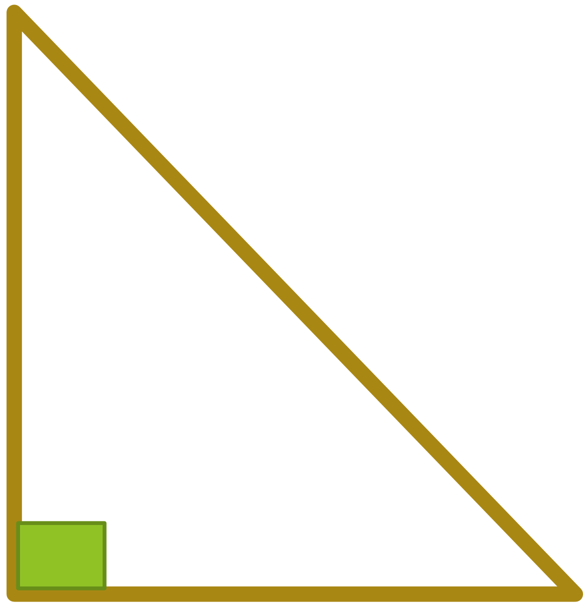
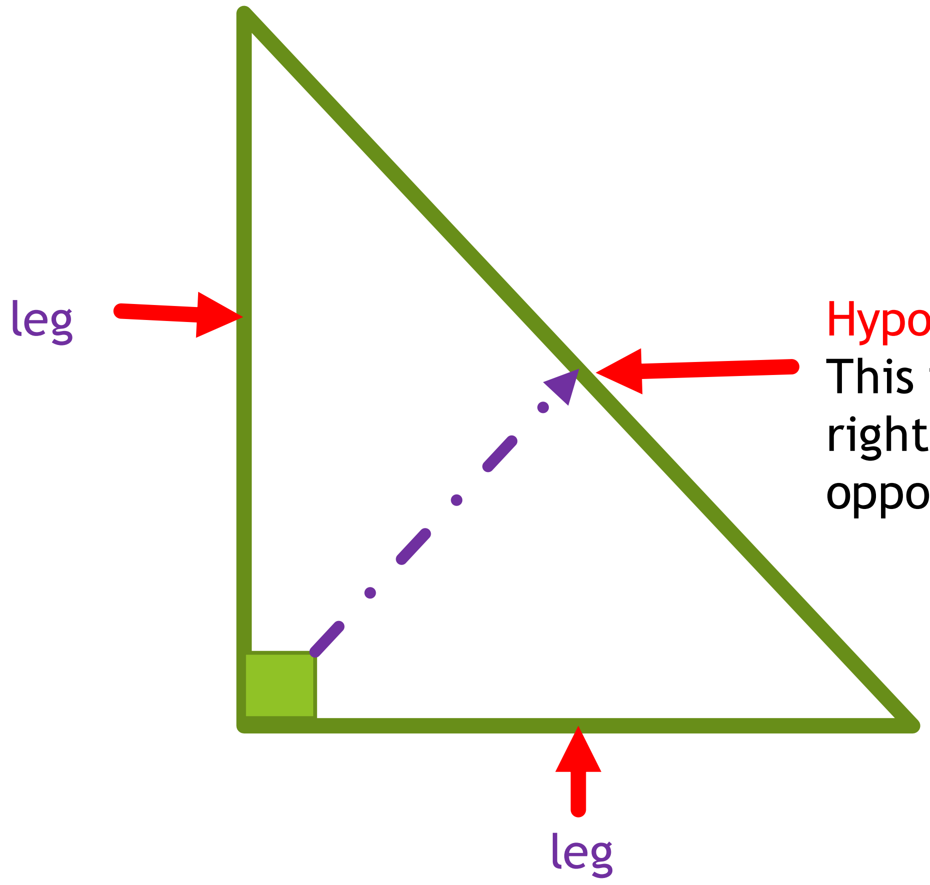
Pythagorean Theorem

WHEN DO WE USE IT

This theorem can only be used with a right triangle

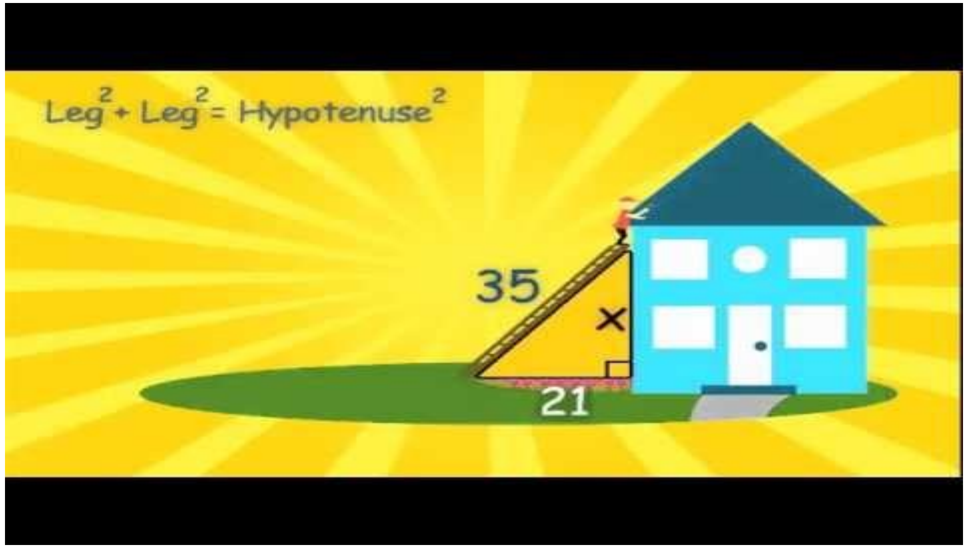


PARTS OF A RIGHT TRIANGLE



Hypotenuse

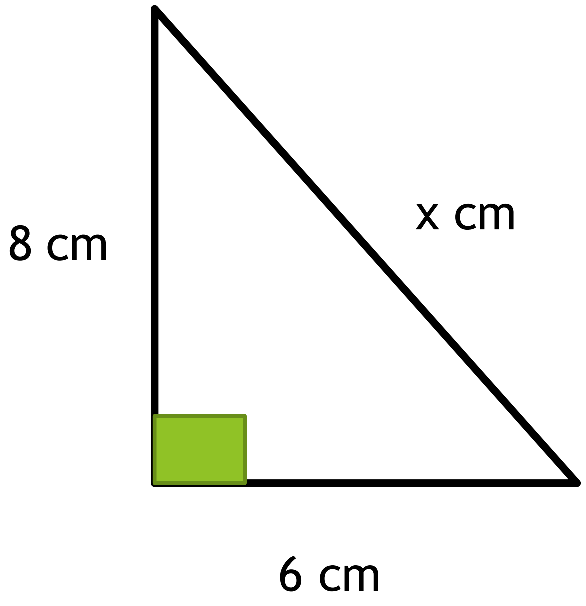
This is the longest side of the right triangle and it is opposite the right angle.


Leg^2 + Leg^2 = Hypotenuse^2
35
x
21

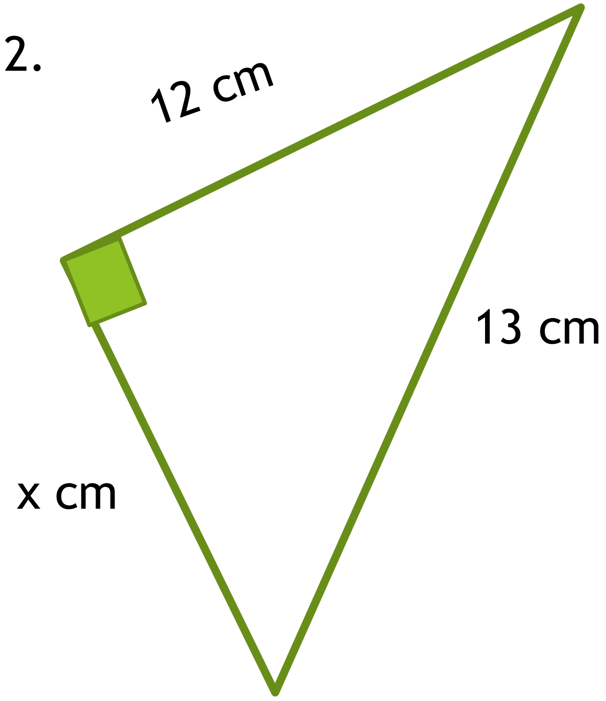
Let’s See How Much You Know

Find the missing lengths

1.

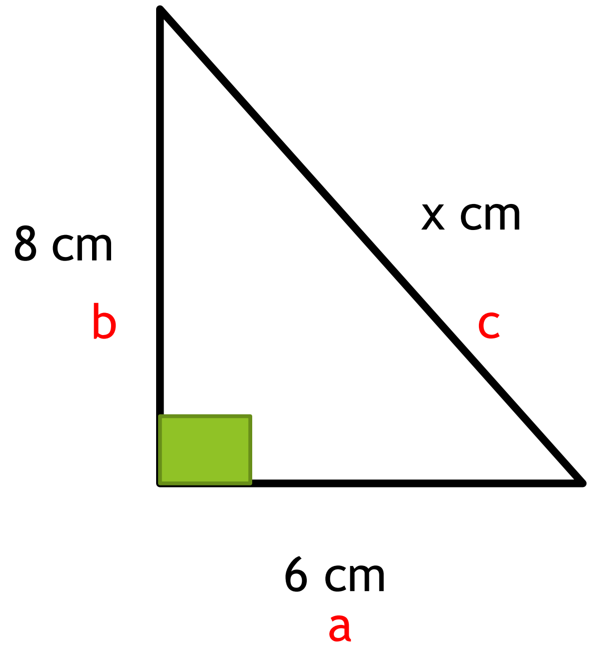


2.



Let's Check Your Answer

1\.



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

$$6^2 + 8^2 = x^2$$

$$36 + 64 = x^2$$

$$100 = x^2$$

$$\sqrt{100} = \sqrt{x^2}$$

$$10 = x$$

Solution to Problem 2

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

$x^2 + 12^2 = 13^2$

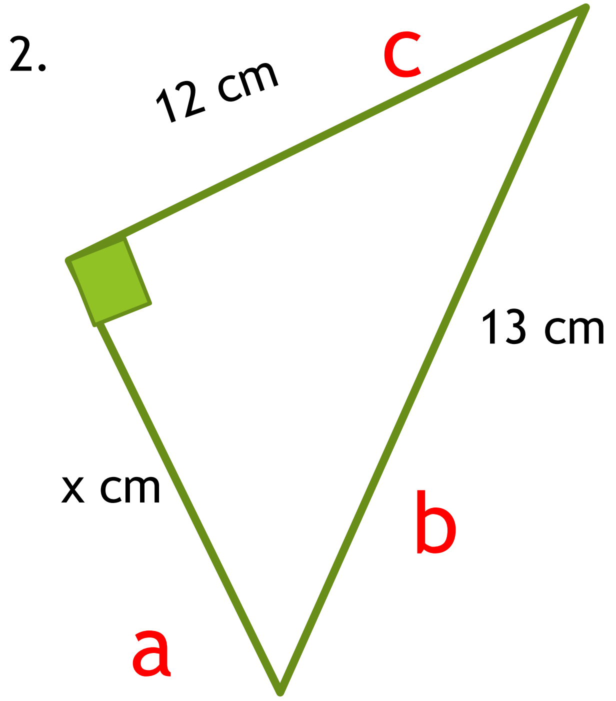
$x^2 + 144 = 169$

$-144 = -144$

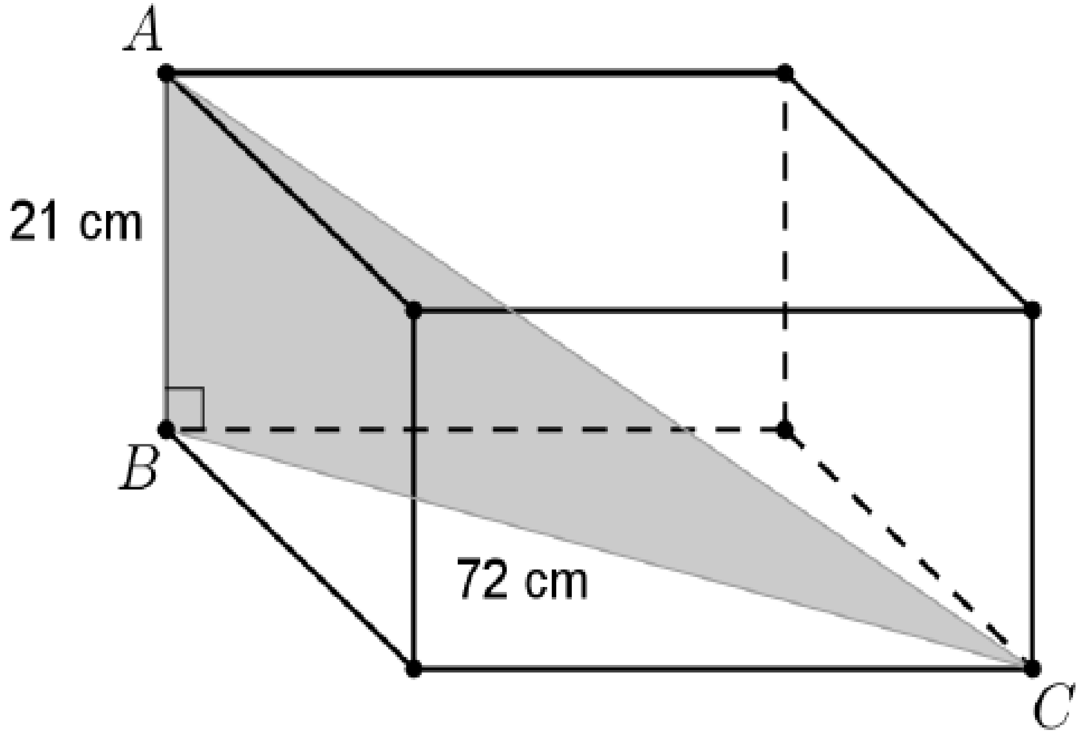
$x^2 = 25$

$\sqrt{x^2} = \sqrt{25}$

$x = 5$



Find the length of $\overline{AC}$ given a right rectangular prism that has measurements in centimeters as shown in the diagram. Show your work and explain how you determined your answer.



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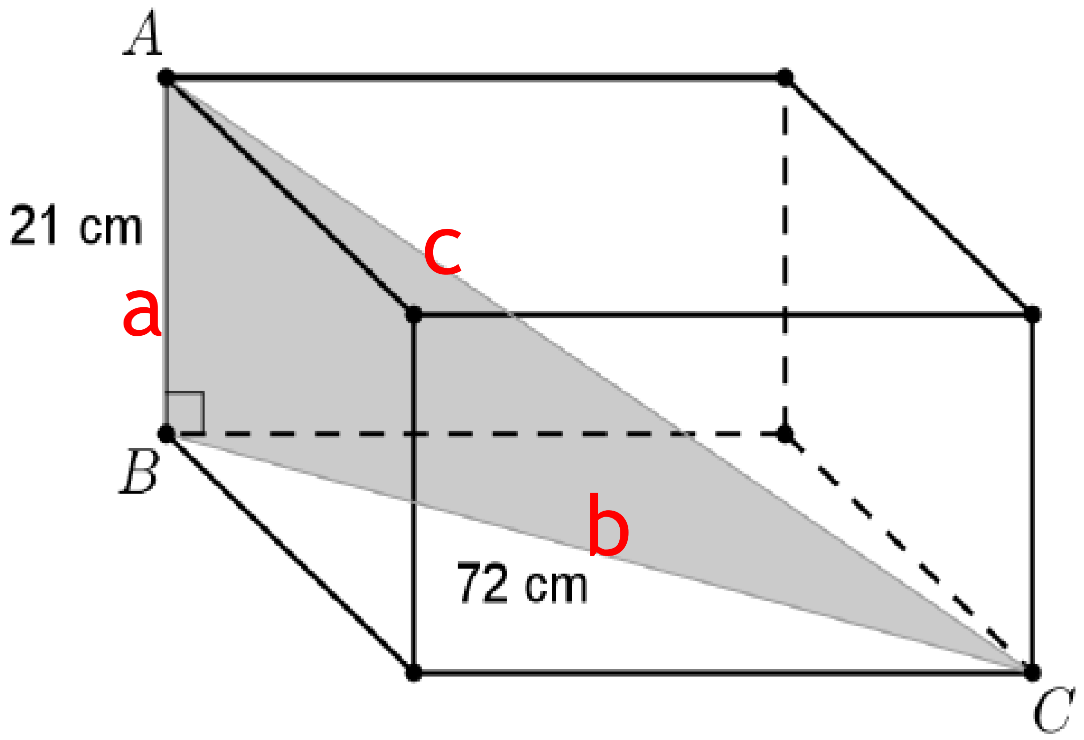
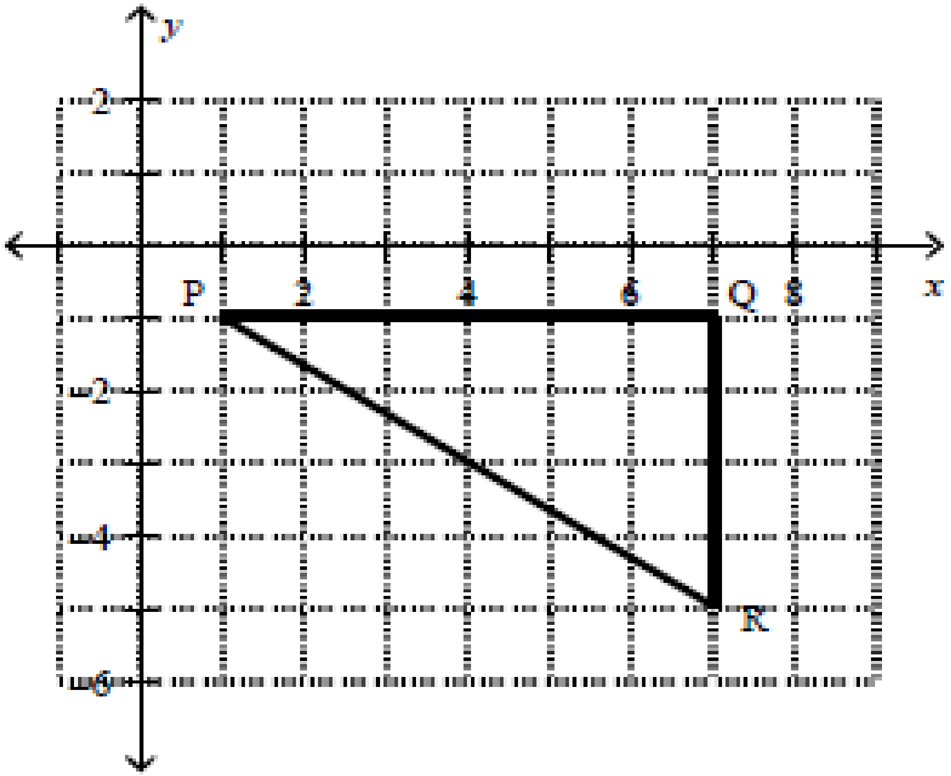


AC is the longest side, therefore it is the hypotenuse.

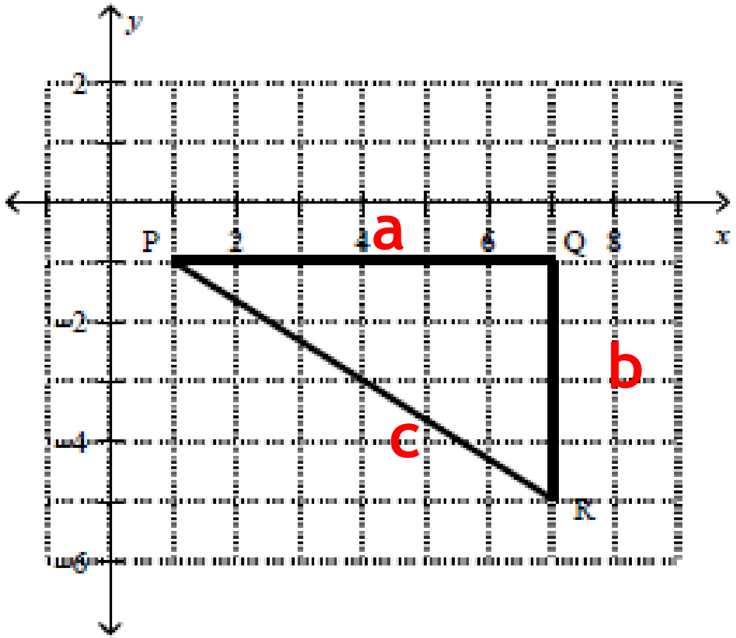
$$a^2 + b^2 = c^2$$
$$21^2 + 72^2 = c^2$$
$$441 + 5184 = c^2$$
$$5625 = c^2$$
$$\sqrt{5625} = \sqrt{c^2}$$
$$75 = c$$

Find the perimeter of right triangle PQR shown below. Round your answer to the nearest tenth of a unit. Show your work.



Hint:Look for the right triangle.
Label the sides a, b, and c.

Find the perimeter of right triangle PQR shown below. Round your answer to the nearest tenth of a unit. Show your work.



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

$PQ^2 + QR^2 = PR^2$

$6^2 + 4^2 = PR^2$

$36 + 16 = PR^2$

$52 = PR^2$

$\sqrt{52} = \sqrt{PR^2}$

$7.21102... = PR$

7.2 (tenth) = PR

Perimeter of right triangle PQR = (6+ 4 + 7.2) units =17.2 unite

Length of PQ = 6 units (Count the spaces. Look at the scale. It goes by 1 although numbering on the graph goes by 2)

Length of QR = 4 units