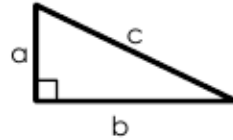


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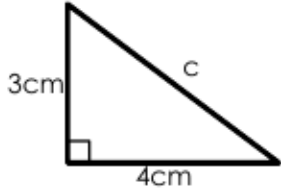
Date:

Pythagorean Theorem

For any right-angled triangle where the short sides have lengths a and b and the hypotenuse has length c the Pythagorean theorem is $a^2 + b^2 = c^2$:

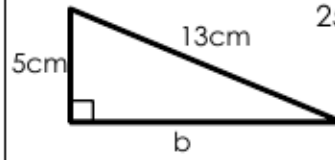


Example:



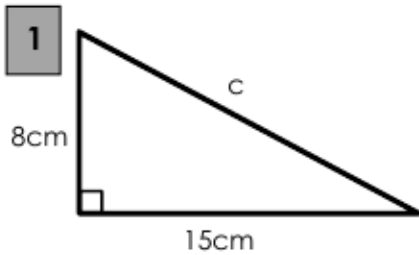
$$\begin{aligned}3^2 + 4^2 &= c^2 \\9 + 16 &= c^2 \\25 &= c^2 \\\sqrt{25} &= c \\5 &= c\end{aligned}$$

Example:

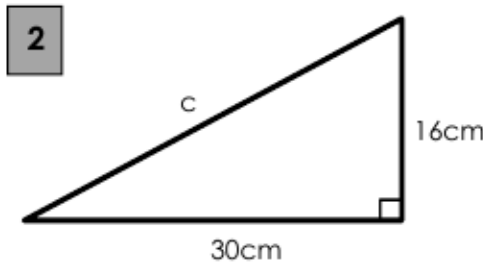


$$\begin{aligned}5^2 + b^2 &= 13^2 \\25 + b^2 &= 169 \\b^2 &= 169 - 25 \text{ so, } b^2 = 144 \\b &= \sqrt{144} \\b &= 12\end{aligned}$$

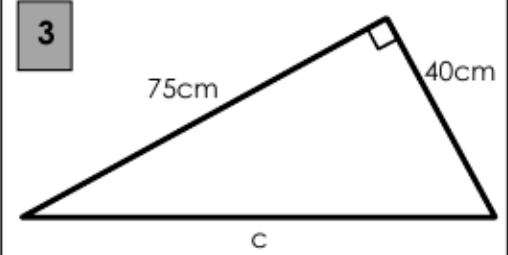
Use the Pythagorean theorem to calculate the lengths of the missing sides.



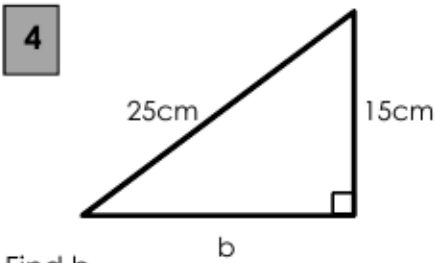
Find c



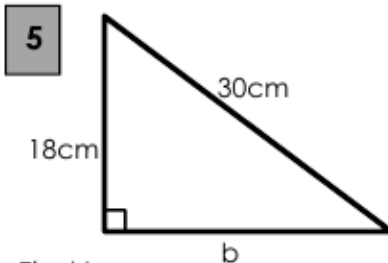
Find c



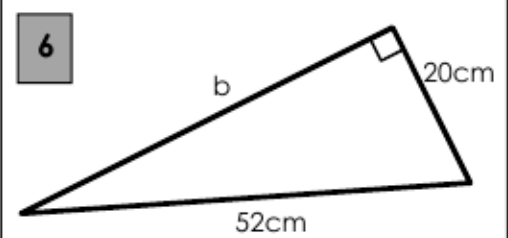
Find c



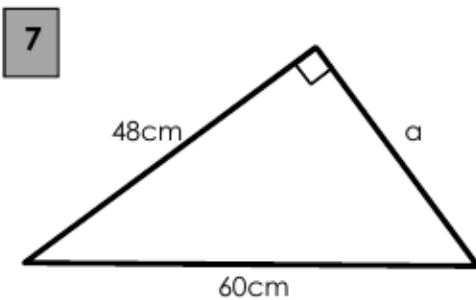
Find b



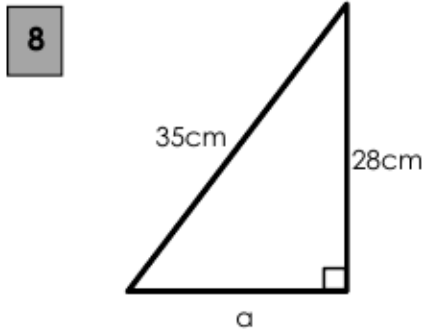
Find b



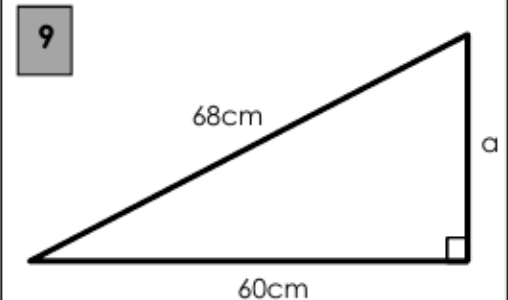
Find b



Find a



Find a



Find a