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7-1 Pythagorean Theorem

I can find the missing side of a right triangle using the pythagorean theorem.

Math in Football

<https://www.youtube.com/watch?v=Grzy-ZAotB0> – Change | Remove





Notes:

- Right triangle - a triangle containing a right or 90° angle.
- Hypotenuse - the side opposite the right angle.
- The hypotenuse is the longest side in a right triangle.
- Legs - the 2 sides that form the right angle.
- Pythagorean Theorem - $a^2 + b^2 = c^2$ where a and b are legs and c is the hypotenuse.

1. Is a triangle with sides a 9 in., c 12 in., and b 7 in. a right triangle?

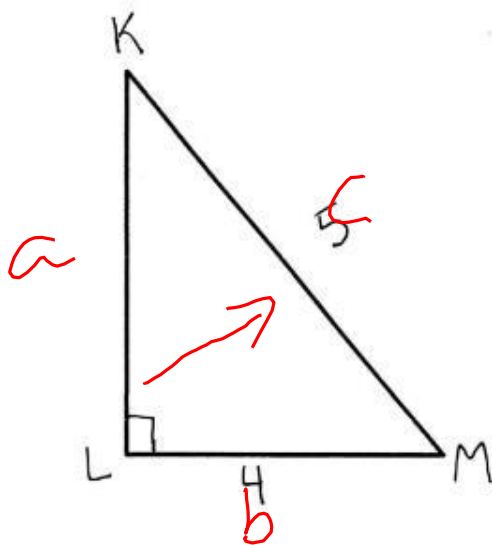
$$a^2 + b^2 = c^2$$

$$9^2 + 7^2 = 12^2$$

$$130 = 144$$

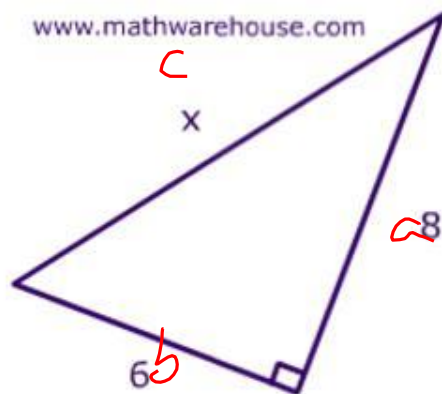
No

2. Find the missing side.



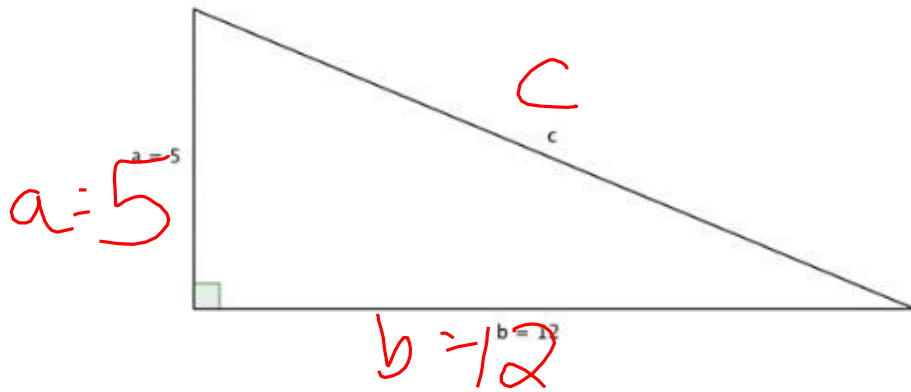
$$\begin{aligned} a^2 + b^2 &= c^2 \\ a^2 + 4^2 &= 5^2 \\ a^2 + 16 &= 25 \\ \cancel{-16} \quad \quad \quad \cancel{-16} \\ \hline a^2 &= 9 \\ \sqrt{a^2} &= \sqrt{9} \\ a &= 3 \end{aligned}$$

3. Find the missing side.



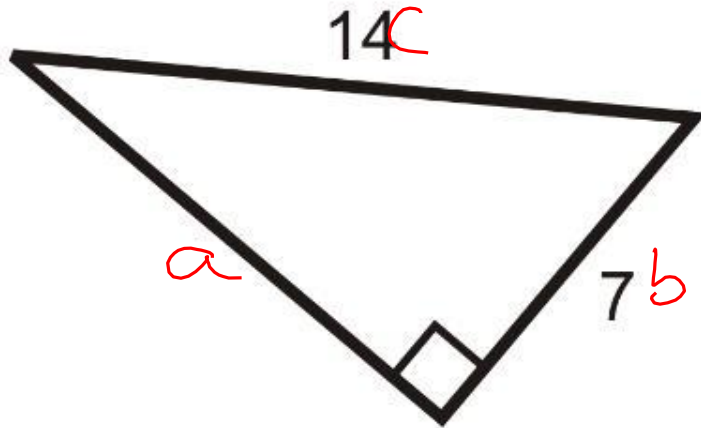
$$\begin{aligned} a^2 + b^2 &= c^2 \\ 8^2 + 6^2 &= x^2 \\ \sqrt{100} &= \sqrt{x^2} \\ 10 &= x \end{aligned}$$

4. Find the missing side.



$$\begin{aligned} a^2 + b^2 &= c^2 \\ 5^2 + 12^2 &= c^2 \\ \sqrt{169} &= \sqrt{c^2} \\ 13 &= c \end{aligned}$$

5. Find the missing side.



$$\begin{aligned} a^2 + b^2 &= c^2 \\ a^2 + 7^2 &= 14^2 \\ a^2 + 49 &= 196 \\ -49 &\quad -49 \\ \hline \sqrt{a^2} &= \sqrt{147} \\ a &= 12.1 \end{aligned}$$

Unit 7 - Google Drive x 7-1 Pythagorean Theorem x

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Assignment: p 240 # 3 - 13. You must draw and label the triangle and write the formula in each problem. Cut out and paste to complete the Pythagorean Theorem Puzzle.

