

Geometry – Unit 8 Activity
Proof of Pythagorean Theorem

G.SRT.B.4

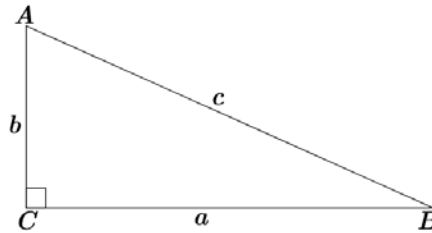
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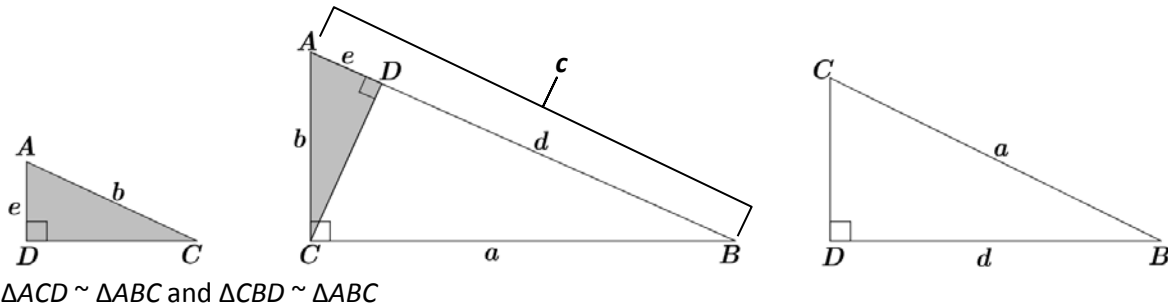
Read the following proof of the Pythagorean Theorem and then answer the questions.

Given: Right $\triangle ABC$, as shown:

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



1. \overline{CD} is drawn perpendicular to \overline{AB} as shown below. This results in three triangles which are similar:



Explain the proof of the Pythagorean Theorem.

Provide reasons for each step by answering the following questions.

Give specific evidence to support your answers.

1. $\triangle ACD \sim \triangle ABC$ and $\triangle CBD \sim \triangle ABC$	What theorem is used to show that the triangles are similar in step 1?	
2. $\frac{b}{c} = \frac{e}{b}$ and $\frac{a}{c} = \frac{d}{a}$	How do you know the sides are proportional as shown in step 2?	
3. $b^2 = ce$ and $a^2 = cd$	How do the equations in step 3 follow from the proportions in step 2?	
4. $a^2 + b^2 = cd + ce$	What property allows writing the equation in step 4?	
5. $a^2 + b^2 = c(d + e)$	What property was used to rewrite $cd + ce$ from step 4 as $c(d + e)$ step 5?	
6. $a^2 + b^2 = c(c)$	Why can $d + e$ replace c ?	
7. $a^2 + b^2 = c^2$	Why is the result significant?	