

# Hypotenuse Leg Theorem Worksheet and Activity

**URL on the Hypotenuse Leg Theorem**

[http://www.mathwarehouse.com/geometry/congruent\\_triangles/hypotenuse-leg-theorem.php](http://www.mathwarehouse.com/geometry/congruent_triangles/hypotenuse-leg-theorem.php)

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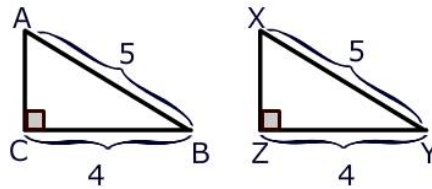
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**Warm Up**→

1) How long is  $\overline{AC}$  ?

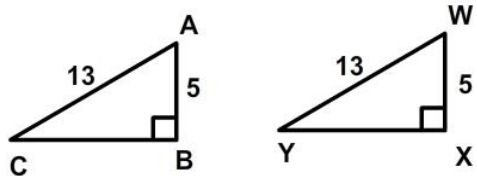
2) How long is  $\overline{XZ}$  ?

3) Is  $\triangle ABC \cong \triangle XYZ$ ?

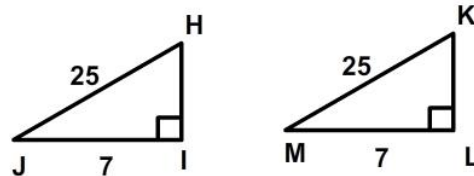


Look at the pairs of triangles below. Are they congruent?

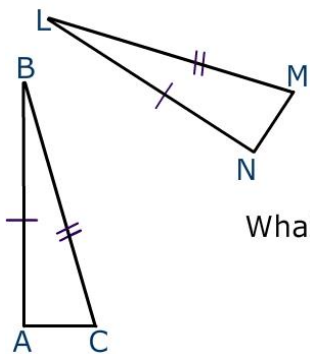
**Pair A**



**Pair B**

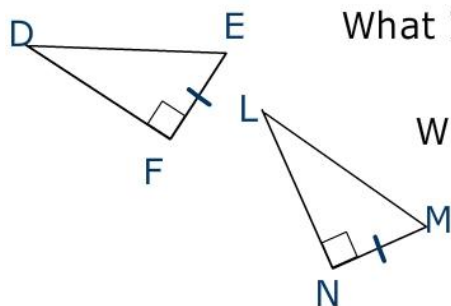


What additional information would you need to prove the triangles are congruent using the Hypotenuse-Leg Postulate?



What is already known?

What is needed for Hypotenuse-leg?

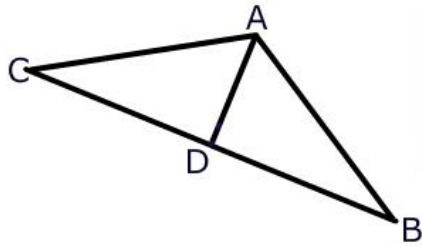


What is already known?

What is needed for Hypotenuse-leg?

Model Proof

[Web PowerPoint Solution](#)

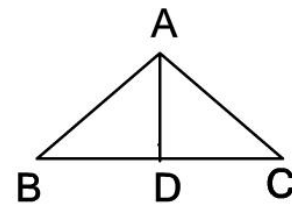


Given  
 $\overline{AD}$  is perpendicular to  $\overline{CB}$   
 $\overline{CA} = \overline{AB}$

**Proof A)**

**Given:**  $\overline{AD} \perp \overline{BC}$ ,  $\overline{BA} \cong \overline{AC}$

**Prove:**  $\triangle ABD \cong \triangle ACD$

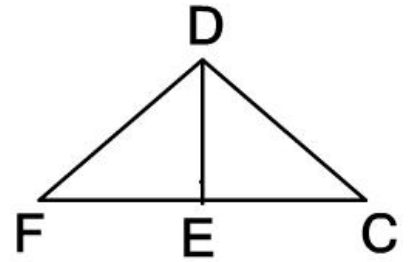


**Proof B)**

**Given:** DE is an altitude.

$$DF \cong DC$$

**Prove:**  $\triangle DEF \cong \triangle DEC$

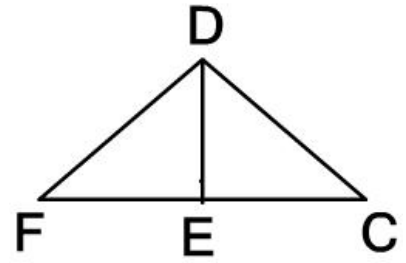


**Proof C)**

**Given:** DE is a perpendicular bisector of FC.

$$DF \cong DC$$

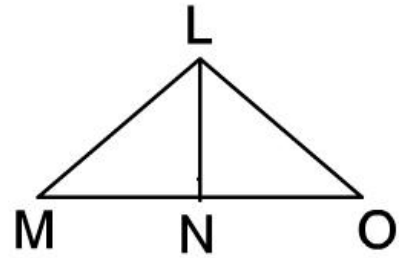
**Prove:**  $\triangle DEF \cong \triangle DEC$



**Proof D )**

**Given:** LN is an altitude  
 $LM \cong LO$

**Prove:**  $\triangle LNM \cong \triangle LON$

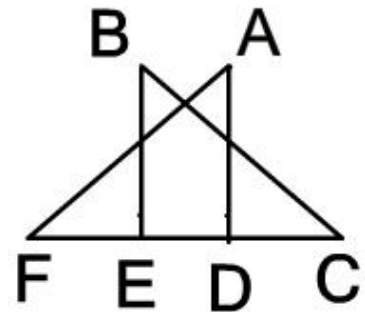


**Proof E)**

**Challenge Proof**

**Given:**  $AD \perp DF, BE \perp EC$   
 $EF \cong DC, BC \cong AF$

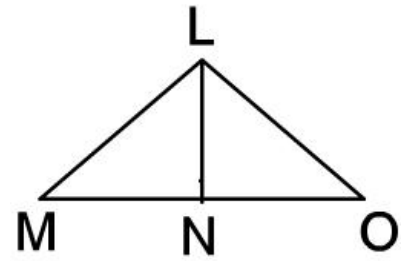
**Prove:**  $\triangle BEC \cong \triangle ADF$



**Proof F)**

**Given:** LN is the perpendicular bisector of MO

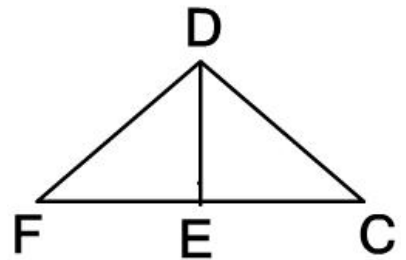
**Prove:**  $\triangle LNM \cong \triangle LON$



**Proof G)**

**Given:**  $FD \cong DC$ , DE is an altitude

**Prove:**  $\triangle DEF \cong \triangle DEC$



**Think Pair Share**

Ray and Angel were having a debate. Ray says that there should be a “Leg-Leg” theorem because if two right triangles have 2 congruent legs, then the triangles must be congruent. (The hypotenuses will be equal after all)

Angel disagrees—Although it’s true that a pair of right triangles with congruent legs must be congruent, we don’t need a leg leg theorem since we have SAS.

**Who is correct? Explain your reasoning**

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