

Hypotenuse Leg Theorem Worksheet and Activity

URL on the Hypotenuse Leg Theorem

http://www.mathwarehouse.com/geometry/congruent_triangles/hypotenuse-leg-theorem.php

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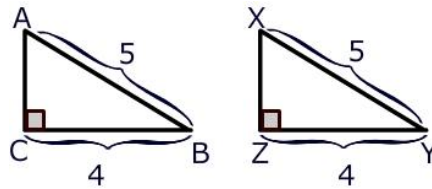
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Warm Up→

1) How long is \overline{AC} ?

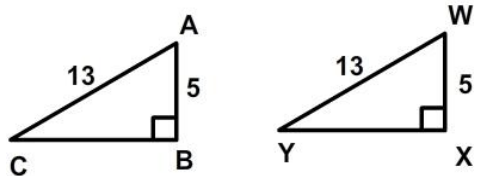
2) How long is \overline{XZ} ?

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

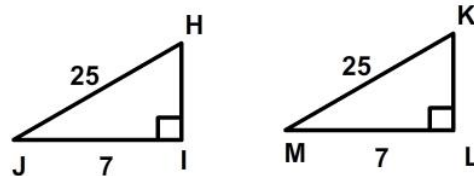


Look at the pairs of triangles below. Are they congruent?

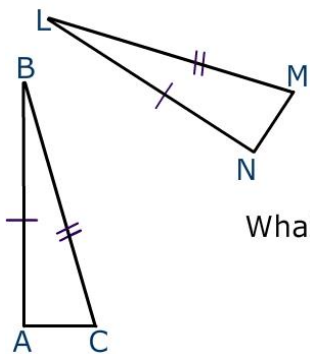
Pair A



Pair B

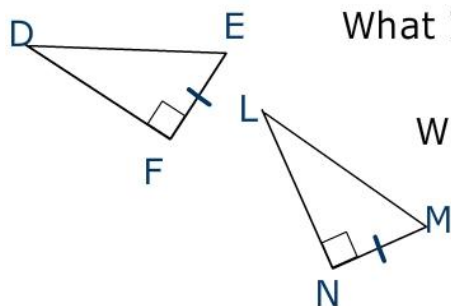


What additional information would you need to prove the triangles are congruent using the Hypotenuse-Leg Postulate?



What is already known?

What is needed for Hypotenuse-leg?

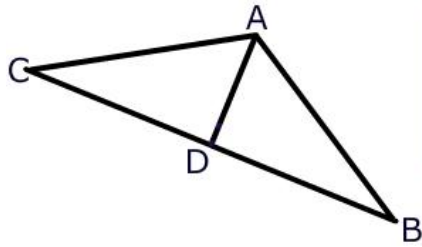


What is already known?

What is needed for Hypotenuse-leg?

Model Proof

[Web PowerPoint Solution](#)

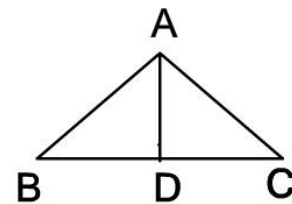


Given
 \overline{AD} is perpendicular to \overline{CB}
 $\overline{CA} = \overline{AB}$

Proof A)

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

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

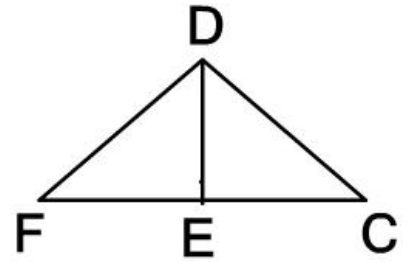


Proof B)

Given: DE is an altitude.

$$DF \cong DC$$

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

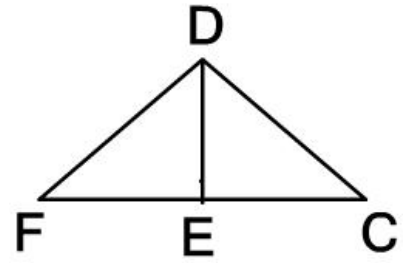


Proof C)

Given: DE is a perpendicular bisector of FC.

$$DF \cong DC$$

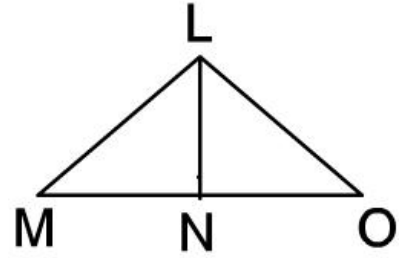
Prove: $\triangle DEF \cong \triangle DEC$



Proof D)

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

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

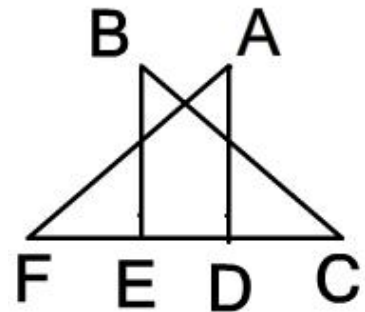


Proof E)

Challenge Proof

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

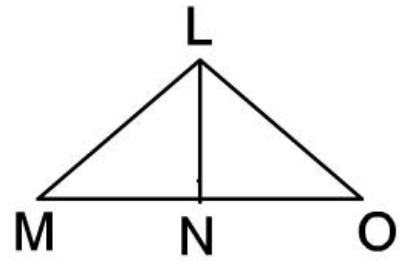
Prove: $\triangle BEC \cong \triangle ADF$



Proof F)

Given: LN is the perpendicular bisector of MO

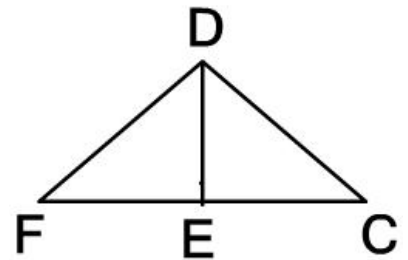
Prove: $\triangle LNM \cong \triangle LON$



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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