Hypotenuse Leg Theorem Worksheet and Activity

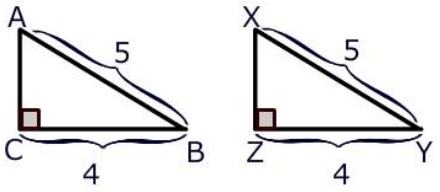
URL on the Hypotenuse Leg Theorem
http://www.mathwarehouse.com/geometry/congruent_triangles/hypotenuse-leg-theorem.php

Warm Up→

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

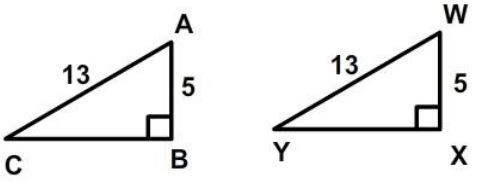
2) How long is $\overline{XZ}$?

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

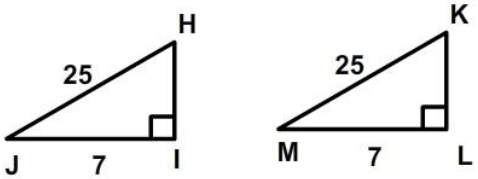


Look at the pairs of triangles below. Are they congruent?

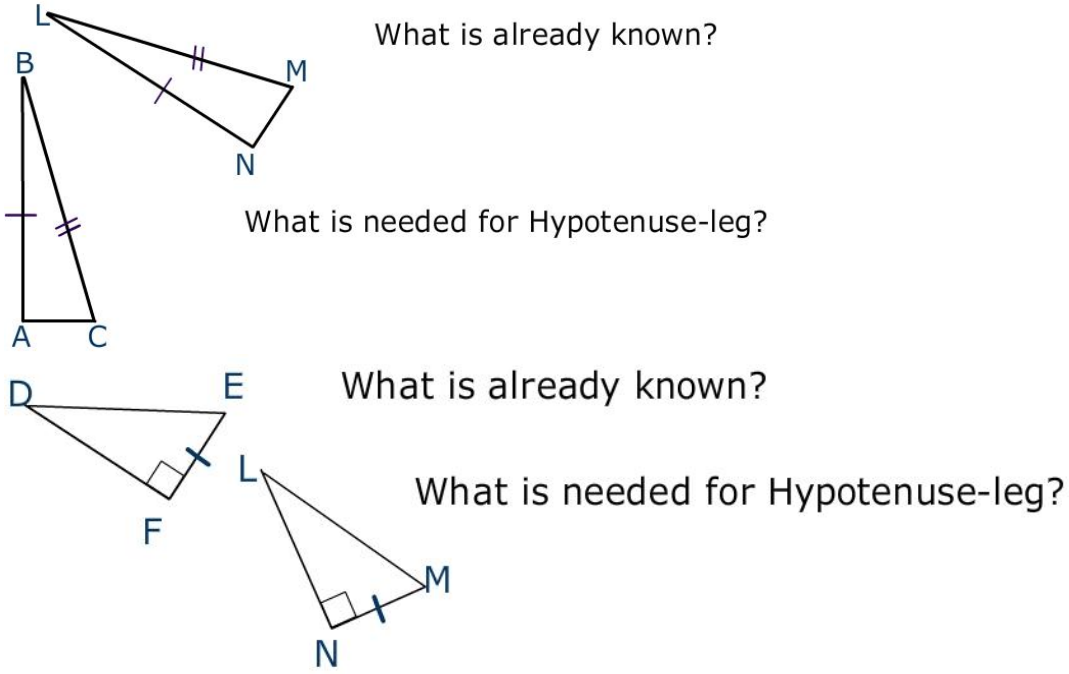
Pair A



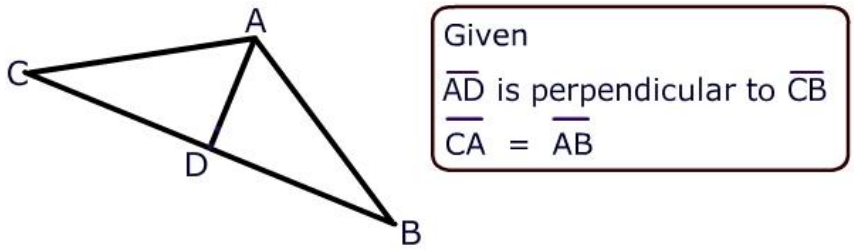
Pair B



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

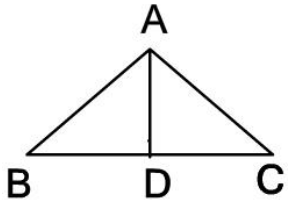


Model Proof [Web PowerPoint Solution]



Proof A)

Given: $\overline{AD} \perp \overline{BC}, \overline{BA} \cong \overline{AC}$
Prove: $\Delta ABD \cong \Delta ACD$

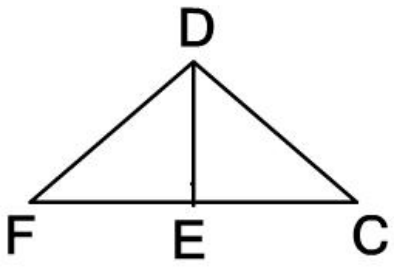


Proof B)

Given: DE is an altitude.

$DF \cong DC$

Prove: $\Delta DEF \cong \Delta DEC$

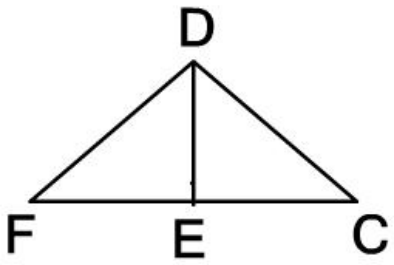


Proof C)

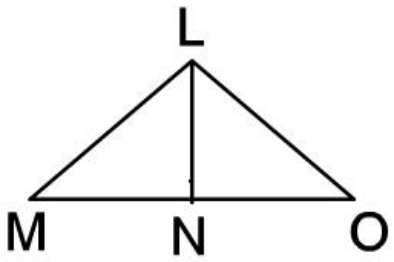
Given: DE is a perpendicular bisector of FC.

$DF \cong DC$

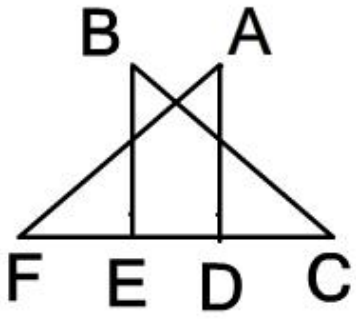
Prove: $\Delta DEF \cong \Delta DEC$



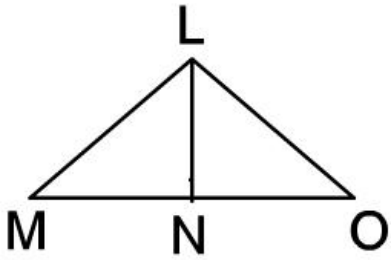
Proof D)
Given: LN is an altitude
$LM \cong LO$
Prove: $\Delta LNM \cong \Delta LON$



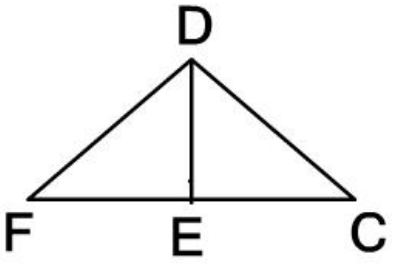
Proof E)
Challenge Proof
Given: $AD \perp DF$, $BE \perp EC$
$EF \cong DC$, $BC \cong AF$
Prove: $\Delta BEC \cong \Delta ADF$



Proof F)
Given: LN is the perpendicular bisector of MO
Prove: $\Delta LNM \cong \Delta LON$



Proof G)
Given: FD ≅ DC, DE is an altitude
Prove: $\Delta DEF \cong \Delta DEC$



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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