G5: Triangle & Quadrilateral Application & Proofs Name:_____

Triangle Proofs Using Flowcharts Date:_____ Per:_____

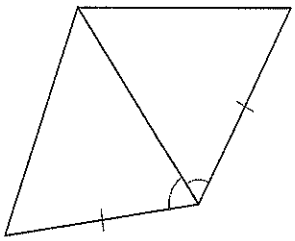
1. Fill in the blanks below about past line or angle properties we know

   Congruent means _____

   Vertical angles are always _____

   A 90 degree angle is also called a _____

2. Examine the diagram below.
   a. Mark any sides or angles that are congruent, but not already marked.
   b. List all pairs of congruent sides or angles.

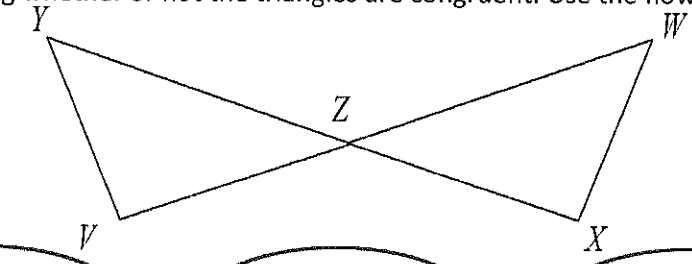


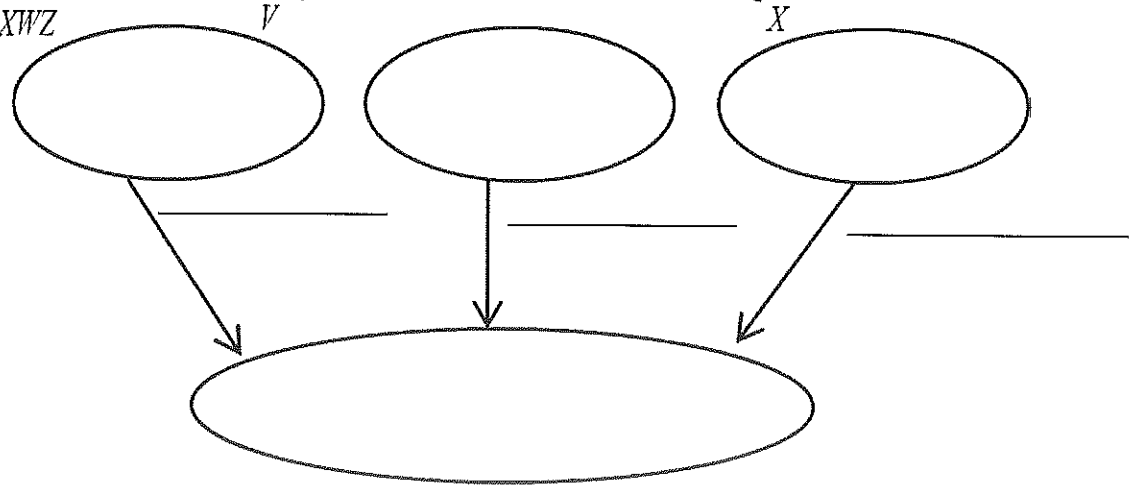
   c. Now circle each pair of congruent sides and angles and write how you know outside the circle.
   When triangles share a side, the reason we know the sides are congruent is called the "reflexive property" because we can write $\overline{AB} \cong \overline{BA}$. *It's called "reflexive" because the statement looks like a reflection!*
   d. Is this enough information to prove the two triangles are congruent? Write a congruence statement next to your work above that reflects your answer.
   e. Which congruence conjecture did you use to prove if the triangles were congruent or not? Circle your congruence statement and write the reason outside this oval. Draw arrows from each reason to the conclusion. You have now finished your flowchart!

3. Make a flowchart proving whether or not the triangles are congruent. Use the flow chart template, if needed.

Given: $\overline{YZ} \cong \overline{WZ}$
$\overline{ZV} \cong \overline{ZX}$

Prove: $\Delta VYZ \cong \Delta XWZ$





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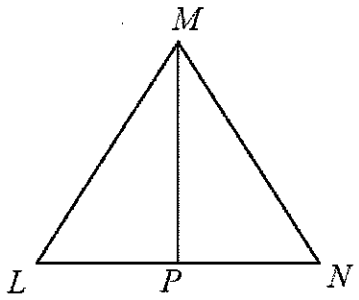
Make flowcharts to prove if the following triangles are congruent.

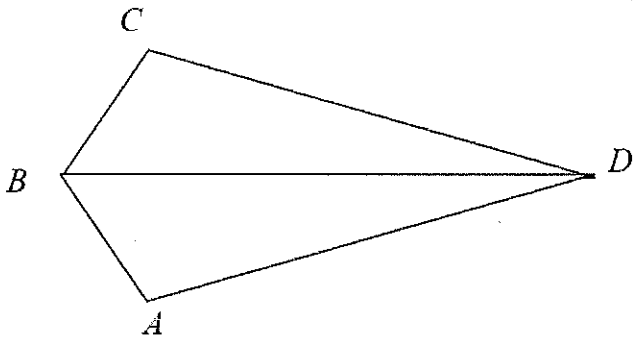
4. Given: $\angle MPL$ and $\angle MPN$ are right angles
   $\overline{LP} \cong \overline{NP}$

   Prove: $\Delta LMP \cong \Delta NMP$



5. Given: $\angle CBD \cong \angle ABD$
   $\angle C \cong \angle A$

   Prove: $\triangle$ BCD is congruent to $\triangle$ BAD



6. Given: $\overline{HG} \cong \overline{JF}$
   $\overline{HF} \cong \overline{JG}$

   Prove: $\Delta JGF \cong \Delta HFG$