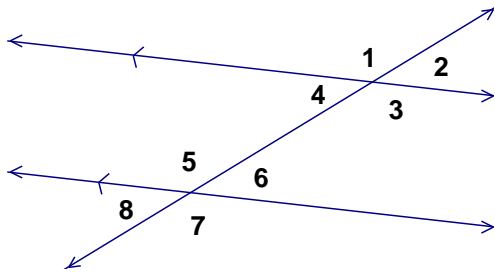


Name: _____ Date: _____ Period: _____

Unit 8 Day 3 - Proving Triangles Congruent Classwork

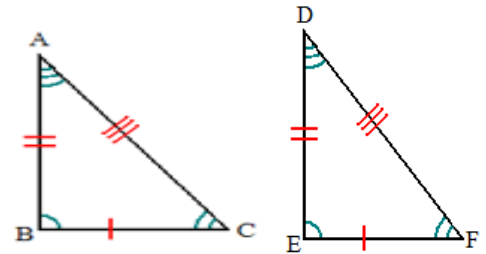
1. Sometimes when you are trying to decide if triangles are congruent, you need to identify other sides or angles that are congruent.



- Name four pairs of vertical angles.
- Name four pairs of corresponding angles.
- Name two pairs of alternate interior angles.
- Name two pairs of alternate exterior angles.

2. These two triangles don't appear to be congruent based on their shapes, but the markings tell us that they ARE congruent.

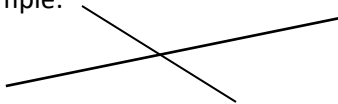
Complete this congruence statement: $\triangle CAB \cong$ _____



3. We should **never** assume something is true in geometry based on how it looks. For example, we can't assume an angle is a right angle just because it appears to be so – it needs to be marked. However, there are two things that will always be true, even without being marked: vertical angles and shared sides.

Vertical angles will always be congruent, as long as they are formed by two intersecting line segments.

Example:



- Mark the congruent angles in the diagram.

Also, if shapes appear to share a common side, that side is assumed to be congruent to itself.

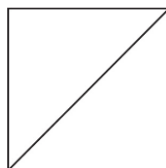
- Mark the congruent sides in the quadrilateral.



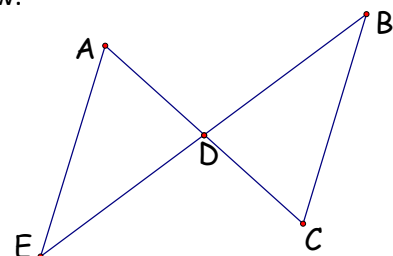
*What else should you know is true without being told?

For #4 and #5, mark the sides and/or angles that you know are congruent from the given information. Determine if the triangles are congruent. If they are congruent give the justification and give the triangle congruence statement. If not explain why not.

4. **BAKERY** Sonia made a sheet of baklava. She has markings on her pan so that she can cut them into large squares. After she cuts the pastry in squares, she cuts them diagonally to form two congruent triangles. Which postulate could you use to prove the two triangles congruent?



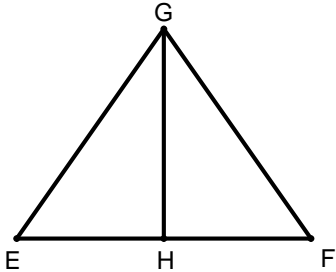
5. If you have two sticks that are roped together at their midpoints like the picture below, are the two triangles formed congruent triangles? Explain how you know.



Mark all the congruent parts on the diagram, including those that are implied but not explicitly stated. Name the triangle congruence theorem (the 3 letter combination) needed to prove that the triangles are congruent. If not congruent, explain why not.

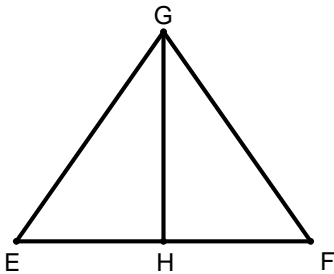
6. Given:

- $\overline{EG} \cong \overline{FG}$
 - \overline{GH} bisects $\angle EGF$
- Prove: $\triangle EGH \cong \triangle FGH$.



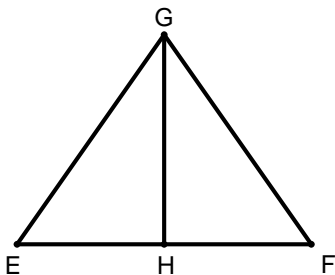
7. Given:

- $\overline{EG} \cong \overline{FG}$
 - $\overline{EH} \cong \overline{FH}$
- Prove: $\triangle EGH \cong \triangle FGH$.



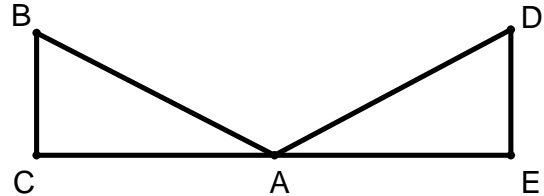
8. Given:

- $\overline{EH} \cong \overline{FH}$
 - $\overline{EF} \perp \overline{GH}$
- Prove: $\triangle EGH \cong \triangle FGH$.



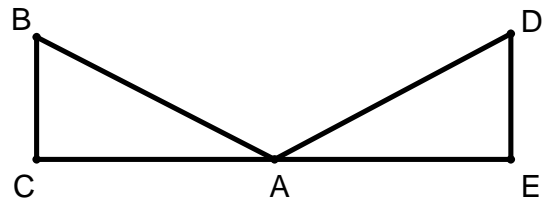
9. Given:

- $\overline{BC} \perp \overline{CE}$ and $\overline{DE} \perp \overline{EC}$.
 - $\overline{BA} \cong \overline{DA}$
 - $\angle B \cong \angle D$.
- Prove: $\triangle ABC \cong \triangle ADE$



10. Given:

- $\overline{BC} \perp \overline{CE}$ and $\overline{DE} \perp \overline{EC}$.
 - A is the midpoint of \overline{CE} .
 - $\angle BAC \cong \angle DAE$.
- Prove: $\triangle ABC \cong \triangle ADE$



11. Given:

- $\overline{BC} \perp \overline{CE}$ and $\overline{DE} \perp \overline{EC}$.
 - A is the midpoint of \overline{CE} .
 - $\overline{BA} \cong \overline{DA}$.
- Prove: $\triangle ABC \cong \triangle ADE$

