

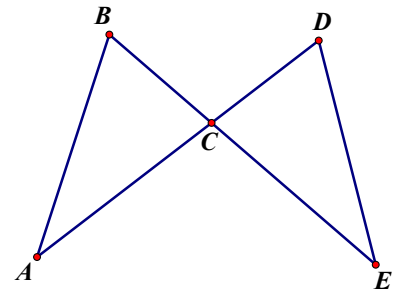
**Geometry, Unit 5 – Congruent Triangles Proof Activity – Part I**

Name \_\_\_\_\_

For each problem, do the following:

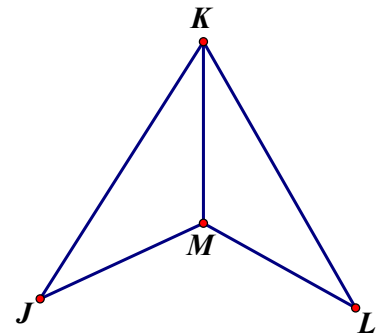
- Show the given information in the diagram (using tick marks to show congruent sides and arcs to show congruent angles)
- Show any other congruent parts you notice (from vertical angles, sides shared in common, or alternate interior angles with parallel lines)
- Give the postulate or theorem that proves the triangles congruent (SSS, SAS, ASA, AAS, HL)
- Finally, fill in the blanks to complete the proof.

1. Given:  $\overline{BC} \cong \overline{DC}$  ;  $\overline{AC} \cong \overline{EC}$   
 Prove:  $\triangle BCA \cong \triangle DCE$



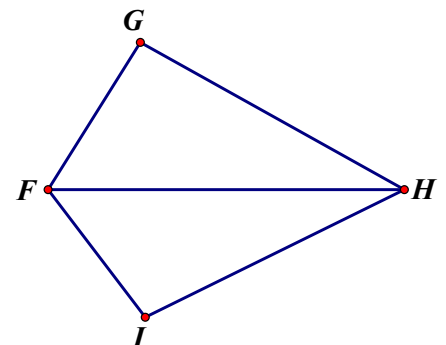
Statements	Reasons
1.	1. Given
2.	2. Vertical $\angle$ s Theorem
3. $\triangle BCA \cong \triangle DCE$	3.

2. Given:  $\overline{JK} \cong \overline{LK}$  ;  $\overline{JM} \cong \overline{LM}$   
 Prove:  $\triangle KJM \cong \triangle KLM$



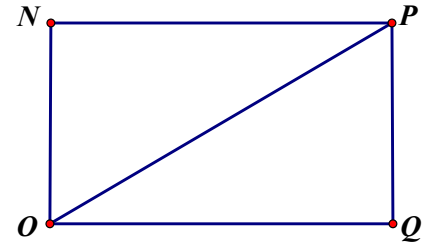
Statements	Reasons
1.	1.
2.	2. Reflexive Prop.
3.	3.

3. Given:  $\angle G \cong \angle I$  ;  $\overline{FH}$  bisects  $\angle GFI$   
 Prove:  $\triangle GFH \cong \triangle IFH$



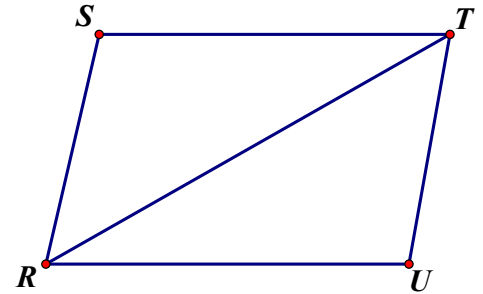
Statements	Reasons
1. $\angle G \cong \angle I$ ; $\overline{FH}$ bisects $\angle GFI$	1.
2. $\angle GFH \cong \angle IFH$	2. Def. of _____
3.	3. Reflexive Prop.
4.	4.

4. Given:  $\angle N$  and  $\angle Q$  are right angles;  $\overline{NO} \cong \overline{PQ}$   
 Prove:  $\triangle ONP \cong \triangle PQO$



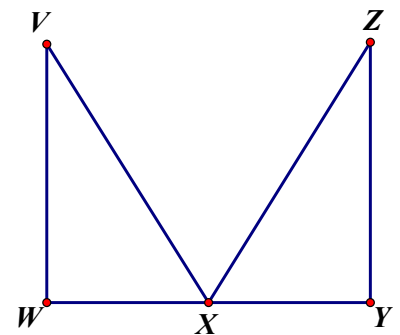
Statements	Reasons
1. $\angle N$ and $\angle Q$ are right angles	1.
2. $\triangle ONP$ and $\triangle PQO$ are _____ triangles	2. Def. of right triangle
3.	3. Reflexive Prop.
4. $\overline{NO} \cong \overline{PQ}$	4.
5.	5.

5. Given:  $\overline{ST} \parallel \overline{RU}$ ;  $\overline{SR} \parallel \overline{TU}$   
 Prove:  $\triangle SRT \cong \triangle UTR$



Statements	Reasons
1. $\overline{ST} \parallel \overline{RU}$	1.
2.	2. If lines $\parallel$ , alt. int. $\angle s \cong$
3. $\overline{SR} \parallel \overline{TU}$	3.
4. $\angle SRT \cong \angle UTR$	4.
5.	5.
6.	6.

6. Given:  $\angle W$  and  $\angle Y$  are right angles;  $\overline{VX} \cong \overline{ZX}$ ; X is the midpoint of  $\overline{WY}$   
 Prove:  $\triangle VWX \cong \triangle ZYX$



Statements	Reasons
1. $\angle W$ and $\angle Y$ are right angles	1.
2.	2. Def. of right triangle
3. $\overline{VX} \cong \overline{ZX}$ ; X is the midpoint of $\overline{WY}$	3.
4.	4. Def. of midpoint
5.	5.