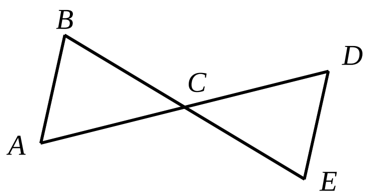
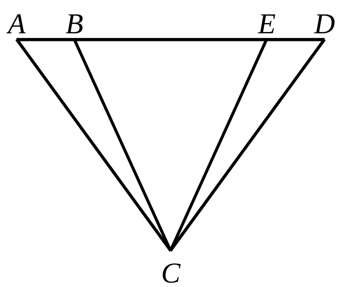
NAME:_______________________________

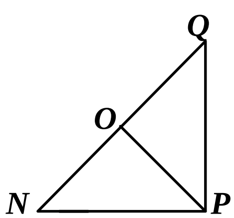
1. $\overline{AC} \cong \overline{DC}$ and $\overline{BC} \cong \overline{CE}$. Prove $\Delta ABC \cong \Delta DEC$.



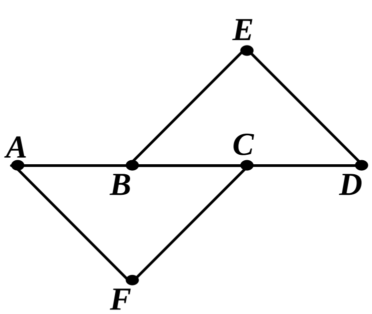
2. $\overline{AC} \cong \overline{DC}$ and $\overline{BA} \cong \overline{ED}$. Prove $\Delta ABC \cong \Delta DEC$.



3. Write a flow proof, a two column proof, or a paragraph proof.
Given: $\overline{QO} \perp \overline{PO}$, $\overline{NO} \perp \overline{PO}$, and $\overline{NO} \cong \overline{QO}$. Prove $\Delta QOP \cong \Delta NOP$.



4. Write a two-column proof.
Given: $\overline{AB} \cong \overline{CD}$, $\angle A \cong \angle D$, and $\overline{AF} \cong \overline{DE}$. Prove $\Delta FAC \cong \Delta EDB$.



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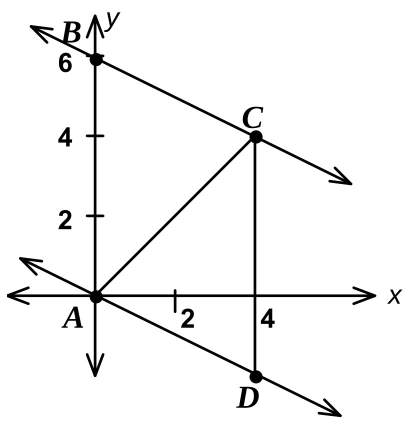
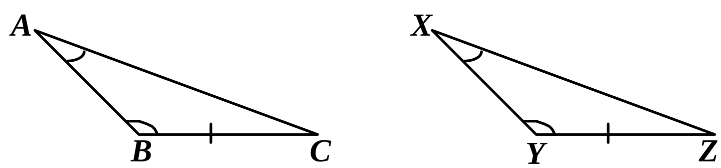
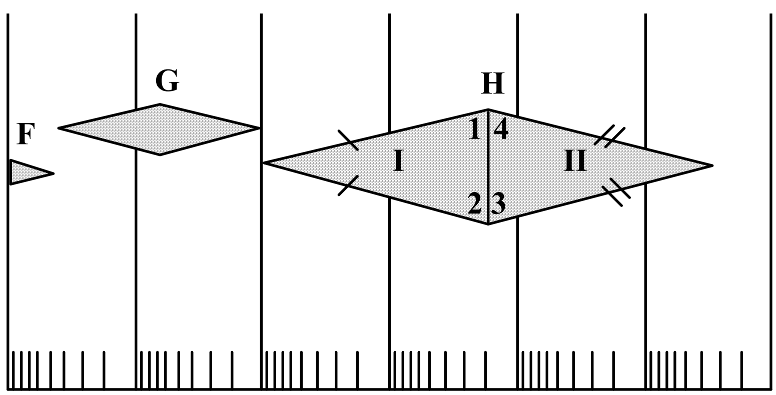
5. Prove that $\Delta ABC \cong \Delta CDA$.



6. Write a two-column proof.
Given: $\angle A \cong \angle X$, $\angle B \cong \angle Y$, $\overline{BC} \cong \overline{YZ}$
Prove: $\Delta ABC \cong \Delta XYZ$



7. The diagram shows visible light waves(F), ultraviolet light(G), and X-rays(H). Outline a proof that triangles I and II are congruent, given $\angle 1 \cong \angle 4$.



8. Write the inverse of Postulate 8.1: If three sides of one triangle are congruent to three sides of another triangle, then the two triangles are congruent. Use it to show that if $\Delta A'B'C'$ is the image of ΔABC under a dilation with scale factor 2, then $\Delta A'B'C'$ and ΔABC are not congruent.

[1] $\angle ACB \cong \angle DCE$ because they are vertical angles. So $\Delta ABC \cong \Delta DEC$ by SAS.

[2] $\angle A \cong \angle D$ because they are base angles of isosceles ΔCAD. So $\Delta ABC \cong \Delta DEC$ by SAS.

[3] Check students' work. They should show that $\angle NOP$ and $\angle QOP$ are right angles and that they are congruent. Because $\overline{NO} \cong \overline{QO}$ and $\overline{PO} \cong \overline{PO}$, the triangles are congruent by SAS.

[4] Check students' work. They should show that $\overline{AC} \cong \overline{BD}$ by adding BC to AB and CD and then using SAS.

[5] $\overline{BC} \parallel \overline{AD}$ since they have the same slope. So, $\angle BCA \cong \angle DAC$ by the Alt. Int. Angles Post. Similarly, $\overline{AB} \parallel \overline{DC}$ since they have the same slope. So, $\angle BAC \cong \angle DCA$. $\overline{AC} \cong \overline{CA}$, so the triangles are congruent by ASA. Other congruence strategies would also work.

[6] Check students' work. Use AAS.

[7] Because the triangles are isosceles, $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$. Since the base of the triangles is congruent to itself, the triangles are congruent by ASA.

[8] If three sides of one triangle are not congruent to three sides of another triangle, then the two triangles are not congruent. Under the dilation, each side in $\Delta A'B'C'$ would be twice the length of the corresponding side in ΔABC, so the sides are not congruent. Hence, the triangles are not congruent.