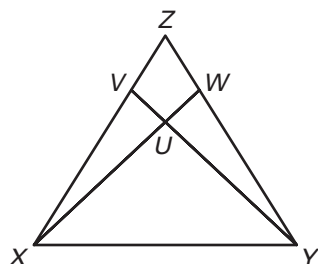NAME _____ DATE _____

Challenge: Skills and Applications

For use with pages 212–219

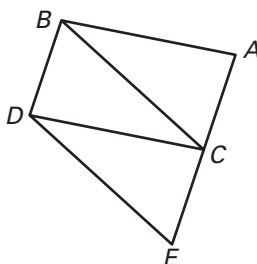## In Exercises 1–4, refer to the diagram and write a two-column proof.

1. Given: $XV = YW$, $VY = WX$
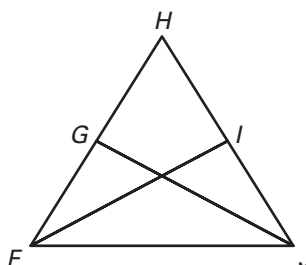
   Prove: $\triangle XVY \cong \triangle YWX$

2. Given: C bisects $\overline{AE}$, $\overline{AB} \parallel \overline{CD}$, $\overline{AB} \cong \overline{CD}$
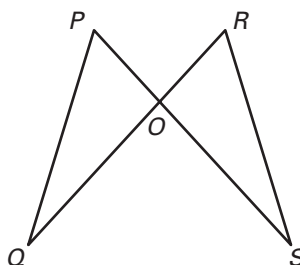
   Prove: $\triangle ABC \cong \triangle CDE$

3. Given: $GH = HI$, G bisects $\overline{FH}$, I bisects $\overline{HJ}$

   Prove: $\triangle FHI \cong \triangle JHG$

4. Given: $OP = OR$, $OQ = OS$

   Prove: $\triangle POQ \cong \triangle ROS$

In Exercises 5–7, sketch a diagram of the appropriate situation and indicate what is given and what is to be proved. Then write a two-column proof, paragraph proof, or flow proof.

5. A *median* of a triangle is a segment that joins a vertex to the midpoint of the opposite side. Prove that a median drawn to the base of an isosceles triangle divides the triangle into two congruent triangles.

6. Prove that if the legs of one right triangle are congruent to the legs of a second right triangle, then the two triangles are congruent.

7. Prove that if one side of an equilateral triangle is congruent to one side of a second equilateral triangle, then the two triangles are congruent.

Lesson 4.3