Lesson 13 Practice Problems

1. Conjecture: A quadrilateral with one pair of sides both congruent and parallel is a parallelogram.

    a. Draw a diagram of the situation.

    b. Mark the given information.

    c. Restate the conjecture as a specific statement using the diagram.

2. In quadrilateral $ABCD$, AD is congruent to BC, and AD is parallel to BC. Show that $ABCD$ is a parallelogram.
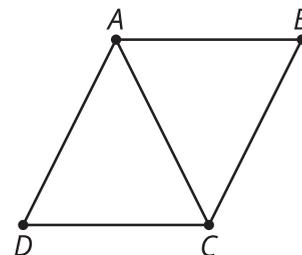
3. $ABDE$ is an isosceles trapezoid. Name one pair of congruent triangles that could be used to show that the diagonals of an isosceles trapezoid are congruent.
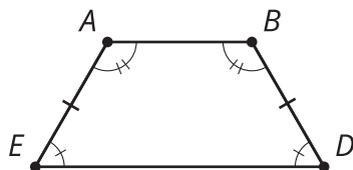
(From Unit 2, Lesson 12.)

4. Select the conjecture with the rephrased statement of proof to show the diagonals of a parallelogram bisect each other.
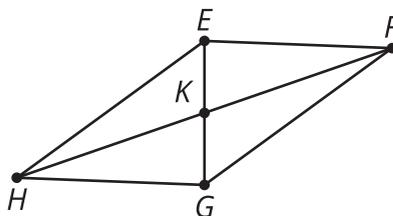
A. In parallelogram $EFGH$, show triangle HEF is congruent to triangle FGH.

B. In parallelogram $EFGH$, show triangle EKH is congruent to triangle GKF.

C. In parallelogram $EFGH$, show EK is congruent to KG and FK is congruent to KH.

D. In quadrilateral $EFGH$ with GH congruent to FE and EH congruent to FG, show $EFGH$ is a parallelogram.

(From Unit 2, Lesson 12.)

5. Is triangle EJH congruent to triangle EIH? Explain your reasoning.

$\overline{HJ} \perp \overline{JE}, \overline{HI} \perp \overline{IE}, \overline{HJ} \cong \overline{HI}$
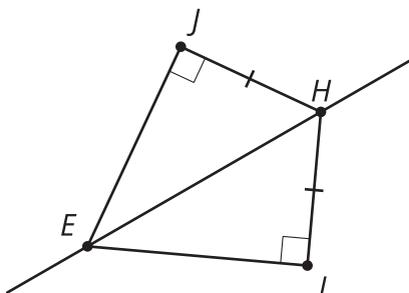
(From Unit 2, Lesson 11.)

6. Select **all** true statements based on the diagram.
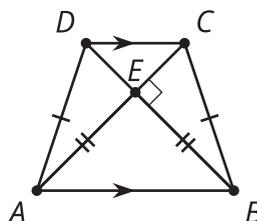
A. Segment DC is congruent to segment AB.

B. Segment DA is congruent to segment CB.

C. Line DC is parallel to line AB.

D. Line DA is parallel to line CB.

E. Angle CBE is congruent to angle DEA.

F. Angle CEB is congruent to angle DEA.

(From Unit 2, Lesson 10.)

7. Which conjecture is possible to prove?

A. If the four angles in a quadrilateral are congruent to the four angles in another quadrilateral, then the two quadrilaterals are congruent.

B. If the four sides in a quadrilateral are congruent to the four sides in another quadrilateral, then the two quadrilaterals are congruent.

C. If the three angles in a triangle are congruent to the three angles in another triangle, then the two triangles are congruent.

D. If the three sides in a triangle are congruent to the three sides in another triangle, then the two triangles are congruent.

(From Unit 2, Lesson 5.)