### Lesson 13 Practice Problems

1. Conjecture: A quadrilateral with one pair of sides both congruent and parallel is a parallelogram.
	1. Draw a diagram of the situation.
	2. Mark the given information.
	3. 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.
* 
1. $ABDE$ 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.)
1. Select the conjecture with the rephrased statement of proof to show the diagonals of a parallelogram bisect each other.
* 
	1. In parallelogram $EFGH$, show triangle $HEF$ is congruent to triangle $FGH$.
	2. In parallelogram $EFGH$, show triangle $EKH$ is congruent to triangle $GKF$.
	3. In parallelogram $EFGH$, show $EK$ is congruent to $KG$ and $FK$ is congruent to $KH$.
	4. In quadrilateral $EFGH$ with $GH$ congruent to $FE$ and $EH$ congruent to $FG$, show $EFGH$ is a parallelogram.
* (From Unit 2, Lesson 12.)
1. Is triangle $EJH$ congruent to triangle $EIH$?
Explain your reasoning.
* $\overset{¯}{HJ}⊥\overset{¯}{JE},\overset{¯}{HI}⊥\overset{¯}{IE},\overset{¯}{HJ}≅\overset{¯}{HI}$
* 
*
* (From Unit 2, Lesson 11.)
1. Select **all** true statements based on the diagram.
* 
	1. Segment $DC$ is congruent to segment $AB$.
	2. Segment $DA$ is congruent to segment $CB$.
	3. Line $DC$ is parallel to line $AB$.
	4. Line $DA$ is parallel to line $CB$.
	5. Angle $CBE$ is congruent to angle $DEA$.
	6. Angle $CEB$ is congruent to angle $DEA$.
* (From Unit 2, Lesson 10.)
1. Which conjecture is possible to prove?
	1. If the four angles in a quadrilateral are congruent to the four angles in another quadrilateral, then the two quadrilaterals are congruent.
	2. If the four sides in a quadrilateral are congruent to the four sides in another quadrilateral, then the two quadrilaterals are congruent.
	3. If the three angles in a triangle are congruent to the three angles in another triangle, then the two triangles are congruent.
	4. 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.)



© CC BY 2019 by Illustrative Mathematics®