

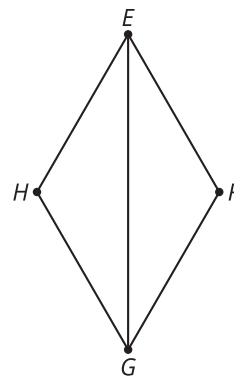
Lesson 15 Practice Problems

1. Select **all** quadrilaterals that have 180 degree rotational symmetry.

- A. trapezoid
- B. isosceles trapezoid
- C. parallelogram
- D. rhombus
- E. rectangle
- F. square

(From Unit 2, Lesson 14.)

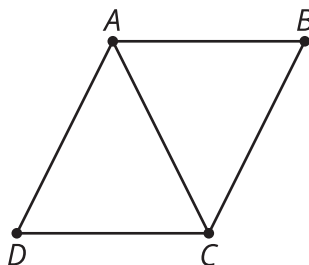
2. Lin wrote a proof to show that diagonal EG is a line of symmetry for rhombus $EFGH$. Fill in the blanks to complete her proof.



Because $EFGH$ is a rhombus, the distance from E to 1 is the same as the distance from E to 2. Since E is the same distance from 3 as it is from 4, it must lie on the perpendicular bisector of segment 5. By the same reasoning, G must lie on the perpendicular bisector of 6. Therefore, line 7 is the perpendicular bisector of segment FH . So reflecting rhombus $EFGH$ across line 8 will take E to 9 and G to 10 (because E and G are on the line of reflection) and F to 11 and H to 12 (since FH is perpendicular to the line of reflection, and F and H are the same distance from the line of reflection, on opposite sides). Since the image of rhombus $EFGH$ reflected across EG is rhombus $EHGF$ (the same rhombus!), line EG must be a line of symmetry for rhombus $EFGH$.

(From Unit 2, Lesson 14.)

3. In quadrilateral $ABCD$, AD is congruent to BC , and AD is parallel to BC . Andre has written a proof to show that $ABCD$ is a parallelogram. Fill in the blanks to complete the proof.



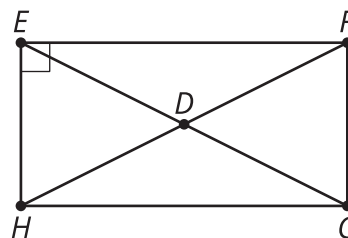
Since AD is parallel to 1, alternate interior angles 2 and 3 are congruent. AC is congruent to 4 since segments are congruent to themselves. Along with the given information that AD is congruent to BC , triangle ADC is congruent to 5 by the 6 Triangle Congruence. Since the triangles are congruent, all pairs of corresponding angles are congruent, so angle DCA is congruent to 7. Since those alternate interior angles are congruent, AB must be parallel to 8. Since we define a parallelogram as a quadrilateral with both pairs of opposite sides parallel, $ABCD$ is a parallelogram.

(From Unit 2, Lesson 13.)

4. Select the statement that **must** be true.
- A. Parallelograms have at least one right angle.
 - B. If a quadrilateral has opposite sides that are both congruent and parallel, then it is a parallelogram.
 - C. Parallelograms have congruent diagonals.
 - D. The height of a parallelogram is greater than the lengths of the sides.

(From Unit 2, Lesson 13.)

5. $EFGH$ is a parallelogram and angle HEF is a right angle.
Select **all** statements that **must** be true.

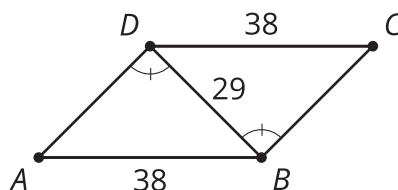


- A. $EFGH$ is a rectangle.
- B. Triangle HEF is congruent to triangle GFH .
- C. Triangle HEF is congruent to triangle FGH .
- D. ED is congruent to HD , DG , and DF .
- E. Triangle EDH is congruent to triangle HDG .

(From Unit 2, Lesson 12.)

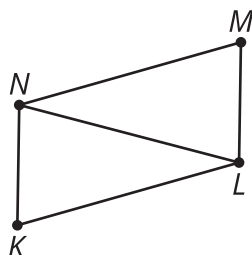
6. Figure $ABCD$ is a parallelogram. Is triangle ADB congruent to triangle CBD ? Show or explain your reasoning.

$$\overline{AB} \cong \overline{CD}, \angle ADB \cong \angle CBD$$



(From Unit 2, Lesson 11.)

7. Figure $KLMN$ is a parallelogram. Prove that triangle KNL is congruent to triangle MLN .



(From Unit 2, Lesson 7.)