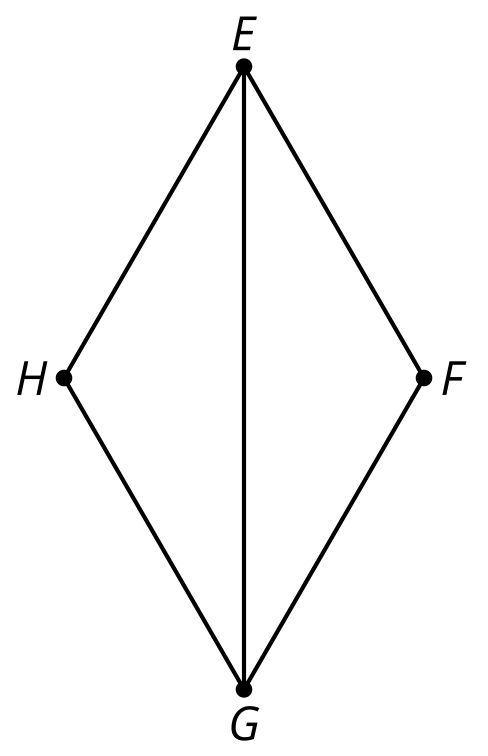
### Lesson 15 Practice Problems

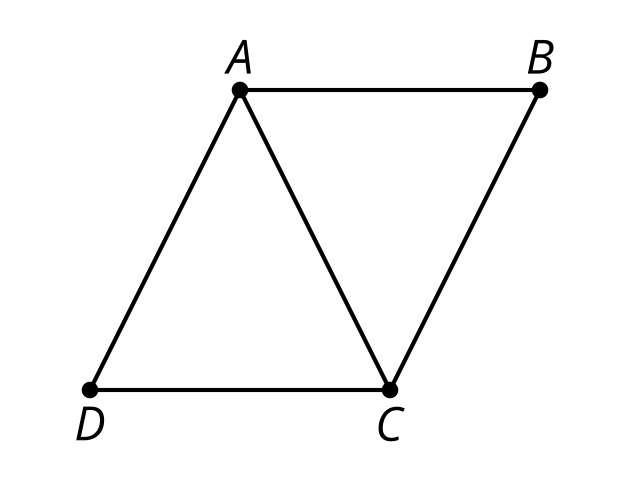
1. Select **all** quadrilaterals that have 180 degree rotational symmetry.
   1. trapezoid
   2. isosceles trapezoid
   3. parallelogram
   4. rhombus
   5. rectangle
   6. square

* (From Unit 2, Lesson 14.)

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

* 
* Because is a rhombus, the distance from to is the same as the distance from to . Since is the same distance from as it is from , it must lie on the perpendicular bisector of segment . By the same reasoning, must lie on the perpendicular bisector of . Therefore, line is the perpendicular bisector of segment . So reflecting rhombus across line will take to and to (because and are on the line of reflection) and to and to (since is perpendicular to the line of reflection, and and are the same distance from the line of reflection, on opposite sides). Since the image of rhombus reflected across is rhombus (the same rhombus!), line must be a line of symmetry for rhombus .
* (From Unit 2, Lesson 14.)

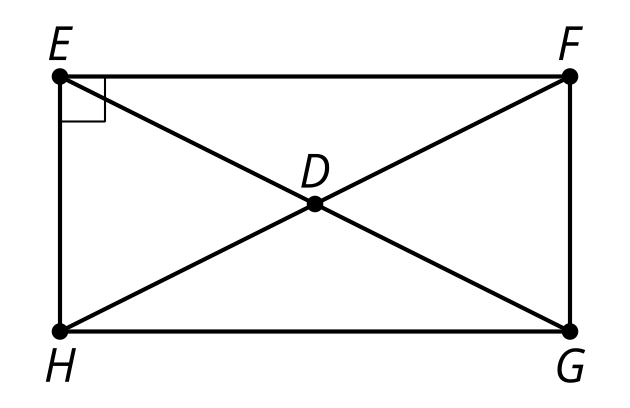
1. In quadrilateral , is congruent to , and is parallel to . Andre has written a proof to show that is a parallelogram. Fill in the blanks to complete the proof.

* 
* Since is parallel to , alternate interior angles  and  are congruent. is congruent to  since segments are congruent to themselves. Along with the given information that is congruent to , triangle is congruent to by the  Triangle Congruence. Since the triangles are congruent, all pairs of corresponding angles are congruent, so angle is congruent to . Since those alternate interior angles are congruent, must be parallel to . Since we define a parallelogram as a quadrilateral with both pairs of opposite sides parallel, is a parallelogram.
* (From Unit 2, Lesson 13.)

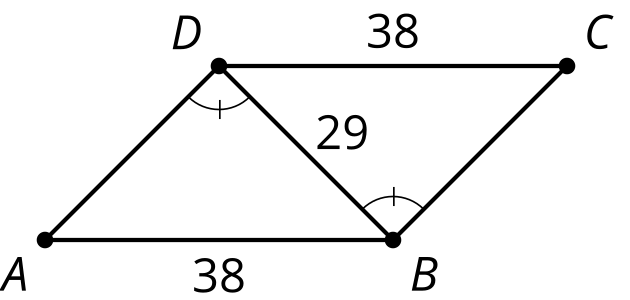
1. Select the statement that **must** be true.
   1. Parallelograms have at least one right angle.
   2. If a quadrilateral has opposite sides that are both congruent and parallel, then it is a parallelogram.
   3. Parallelograms have congruent diagonals.
   4. The height of a parallelogram is greater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

* (From Unit 2, Lesson 13.)

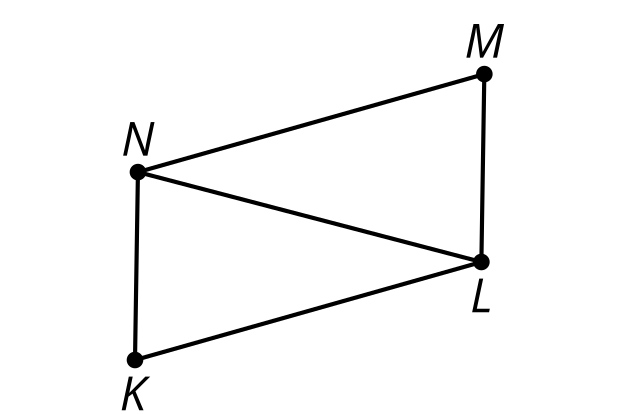
1. is a parallelogram and angle is a right angle. Select **all**statements that **must** be true.

* 
  1. is a rectangle.
  2. Triangle  is congruent to triangle .
  3. Triangle  is congruent to triangle .
  4. is congruent to , , and .
  5. Triangle  is congruent to triangle .
* (From Unit 2, Lesson 12.)

1. Figure  is a parallelogram. Is triangle  congruent to triangle ? Show or explain your reasoning.

* 
* (From Unit 2, Lesson 11.)

1. Figure  is a parallelogram. Prove that triangle  is congruent to triangle .

* 
* (From Unit 2, Lesson 7.)



© CC BY 2019 by Illustrative Mathematics®