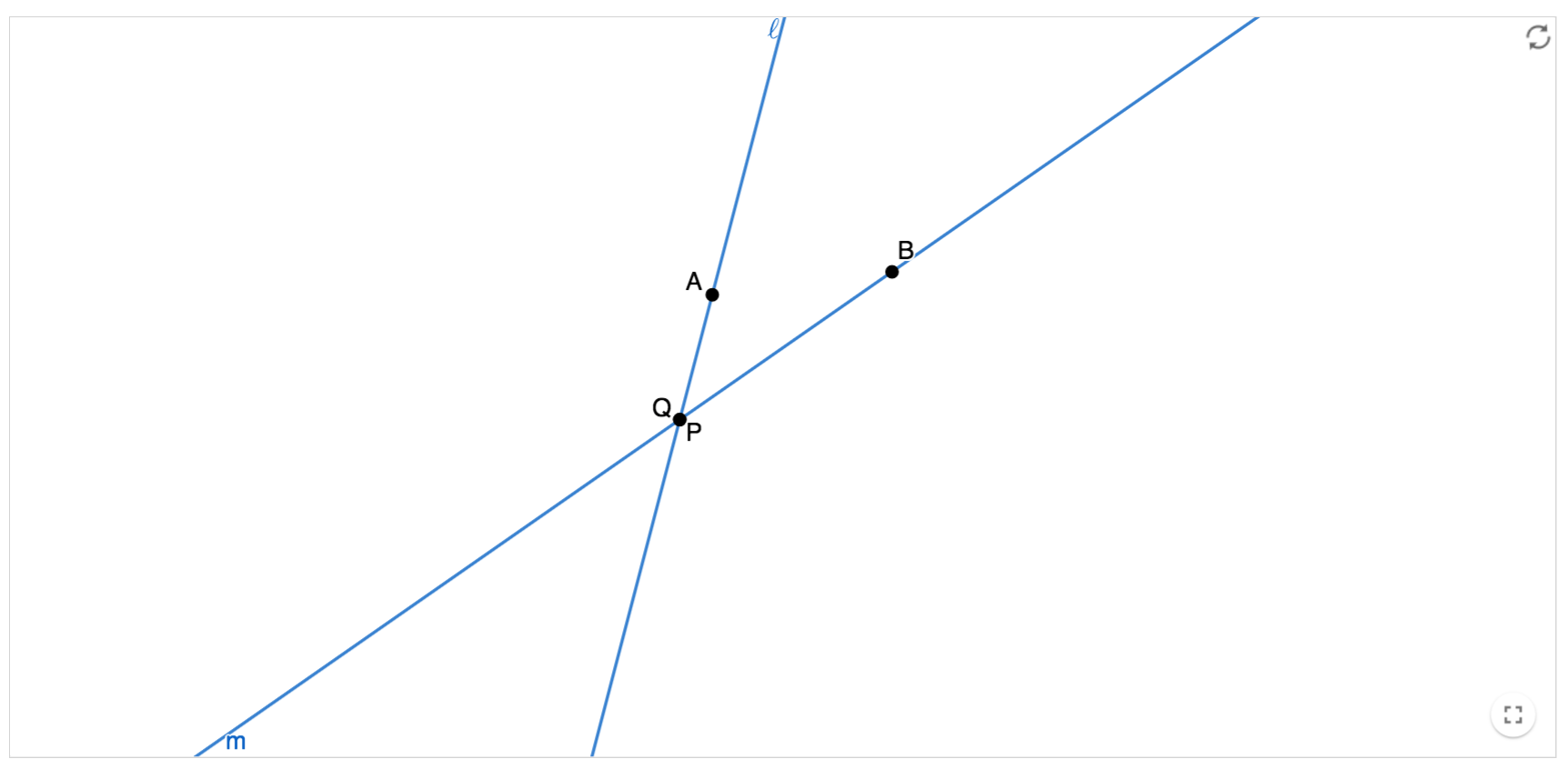
## Unit 2 Lesson 7: Angle-Side-Angle Triangle Congruence

### 1 Notice and Wonder: Assertion (Warm up)

#### Images for Launch



#### Student Task Statement

Assertion: Through 2 distinct points passes a unique line. Two lines are said to be *distinct* if there is at least 1 point that belongs to one but not the other. Otherwise, we say the lines are the same. Lines that have no point in common are said to be *parallel*.

Therefore, we can conclude: given 2 distinct lines, either they are parallel, or they have exactly 1 point in common.

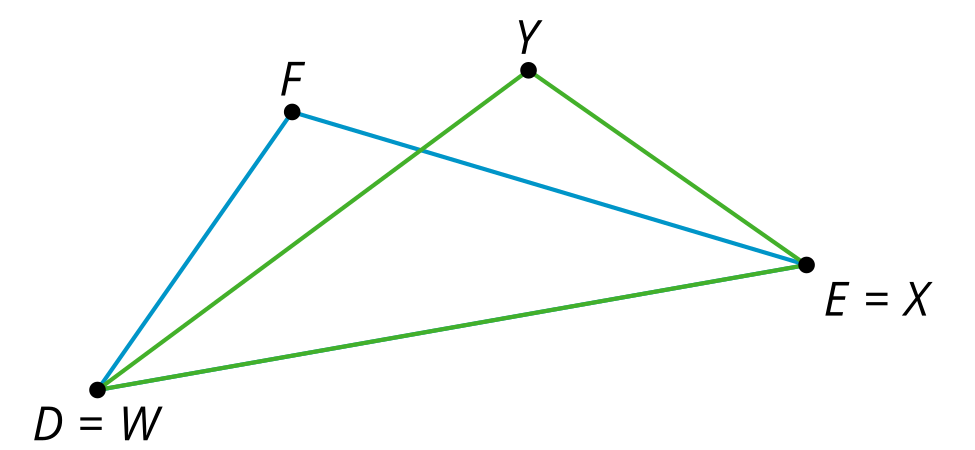
What do you notice? What do you wonder?

### 2 Proving the Angle-Side-Angle Triangle Congruence Theorem

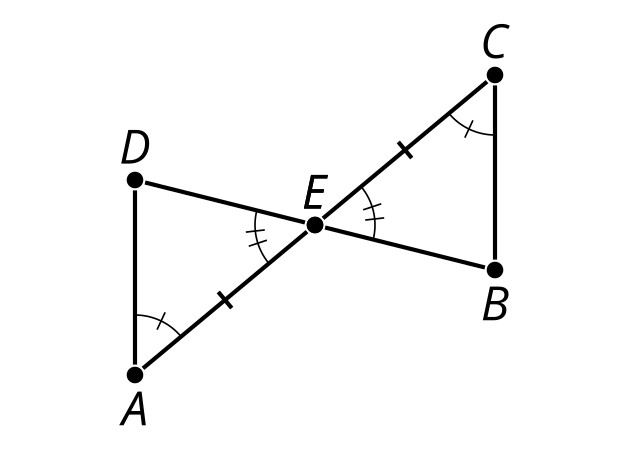
#### Student Task Statement

1. Two triangles have 2 pairs of corresponding angles congruent, and the corresponding sides between those angles are congruent. Sketch 2 triangles that fit this description.
2. Label the triangles and , so that angle is congruent to angle , angle is congruent to angle , and side is congruent to side .
3. Use a sequence of rigid motions to take triangle onto triangle . For each step, explain how you know that one or more vertices will line up.

#### Activity Synthesis



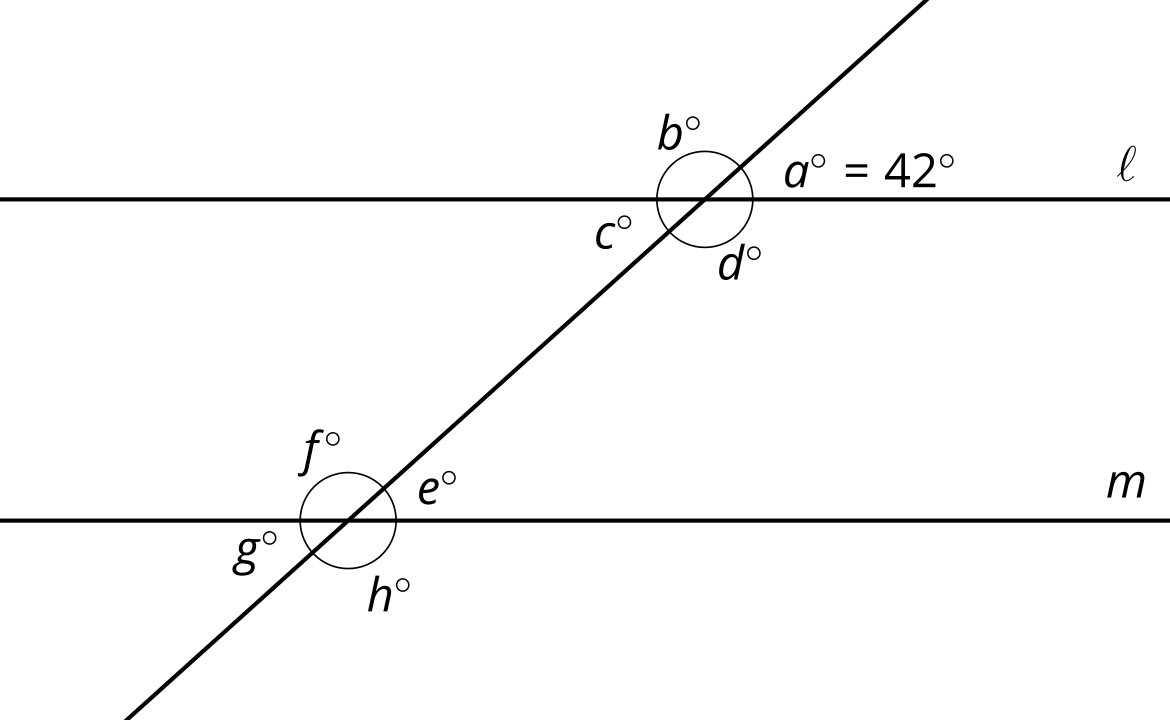
, so



### 3 Find the Missing Angle Measures (Optional)

#### Student Task Statement

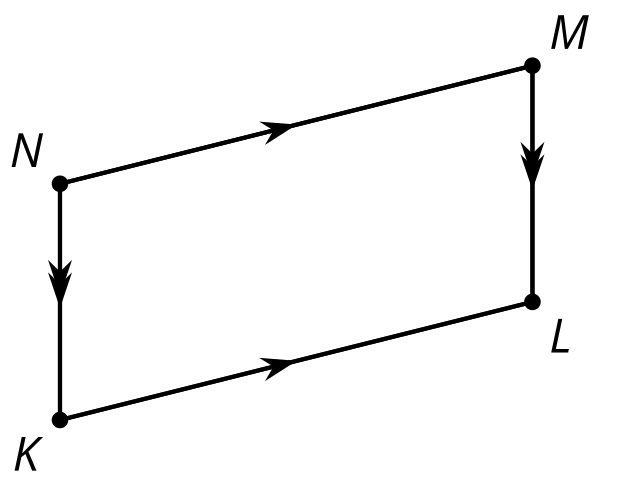
Lines and are parallel. . Find , , , , , , and .



### 4 What Do We Know For Sure About Parallelograms?

#### Images for Launch

, so  is a parallelogram



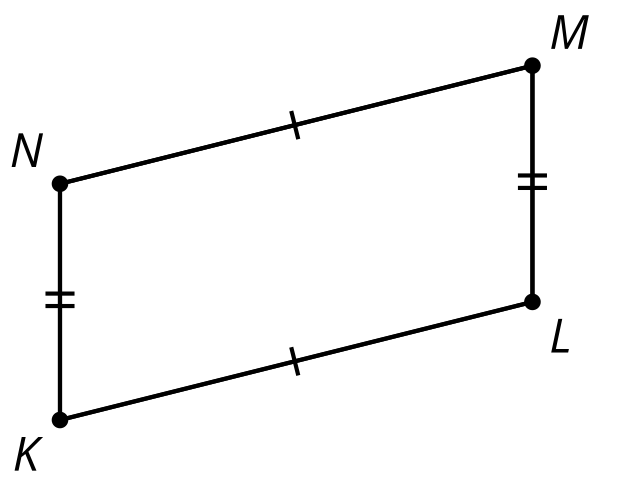
#### Student Task Statement

Quadrilateral is a **parallelogram**. By definition, that means that segment is parallel to segment , and segment is parallel to segment .

1. Sketch parallelogram and then draw an auxiliary line to show how can be decomposed into 2 triangles.
2. Prove that the 2 triangles you created are congruent, and explain why that shows one pair of opposite sides of a parallelogram must be congruent.

#### Activity Synthesis

 is a parallelogram so





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