IM 9–12 MATH v.1

Unit 2
Congruence

GEOMETRY

Lesson 1

Congruent Parts, Part 1

Illustrative Mathematics®

Kendall Hunt

Learning Goal

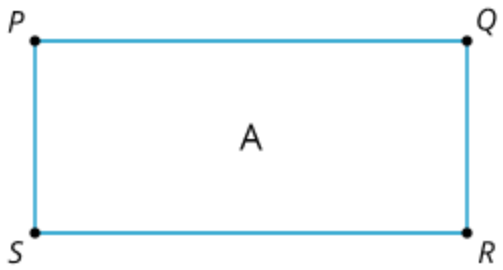
Geometry

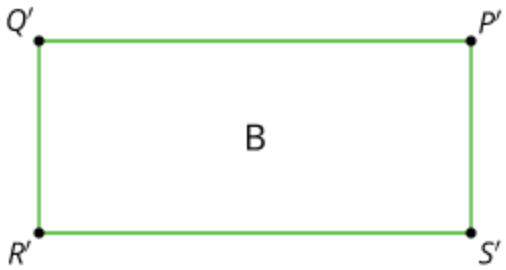
Let's figure out what the corresponding sides and angles in figures have to do with congruence.

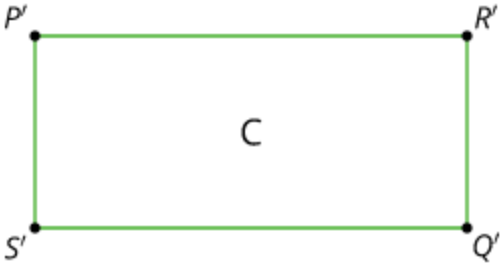
Transformed Rectangles

Warm-up: Notice and Wonder

What do you notice? What do you wonder?



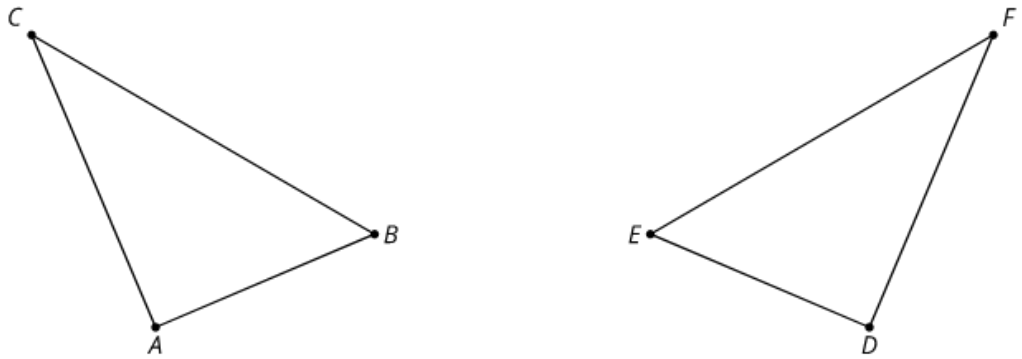




If We Know This, Then We Know That...

Triangle *ABC* is congruent to triangle *DEF*.

$\triangle ABC \cong \triangle DEF$



1. Find a sequence of rigid motions that takes triangle *ABC* to triangle *DEF*.
2. What is the image of segment *BC* after that transformation?
3. Explain how you know those segments are congruent.
4. Justify that angle *ABC* is congruent to angle *DEF*.

Making Quadrilaterals

1. Draw a triangle.
2. Find the midpoint of the longest side of your triangle.
3. Rotate your triangle 180^{o} using the midpoint of the longest side as the center of the rotation.
4. Label the **corresponding** parts and mark what must be congruent.
5. Make a conjecture and justify it.
    a. What type of quadrilateral have you formed?
    b. What is the definition of that quadrilateral type?
    c. Why must the quadrilateral you have fit the definition?

Congruent Parts, Part 1

Lesson Synthesis

Write down your reason for why corresponding parts of congruent figures must be congruent.

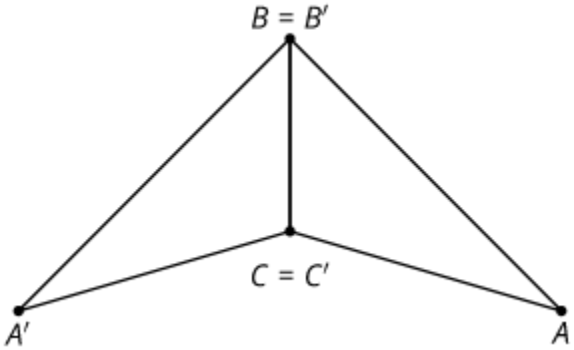
Learning Targets

- I can identify corresponding parts from a congruence statement.
- I can use rigid transformations to figure out if figures are congruent.
- I can write a congruence statement.

Geometry

Making Angle Bisectors

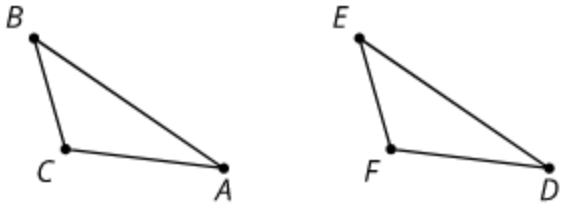
Cool-down



Triangle $A'B'C'$ is a reflection of triangle ABC across line BC. Prove that ray BC is the angle bisector of angle ABA'.

corresponding

For a rigid transformation that takes one figure onto another, a part of the first figure and its image in the second figure are called corresponding parts. We also talk about corresponding parts when we are trying to prove two figures are congruent and set up a correspondence between the parts to see if the parts are congruent.



In the figure, segment *AB* corresponds to segment *DE*, and angle *BCA* corresponds to angle *EFD*.