Working with Rigid Transformations

Illustrative Mathematics®

Learning Goal

- I can describe a transformation that takes given points to another set of points.

17.1 Math Talk: From Here to There

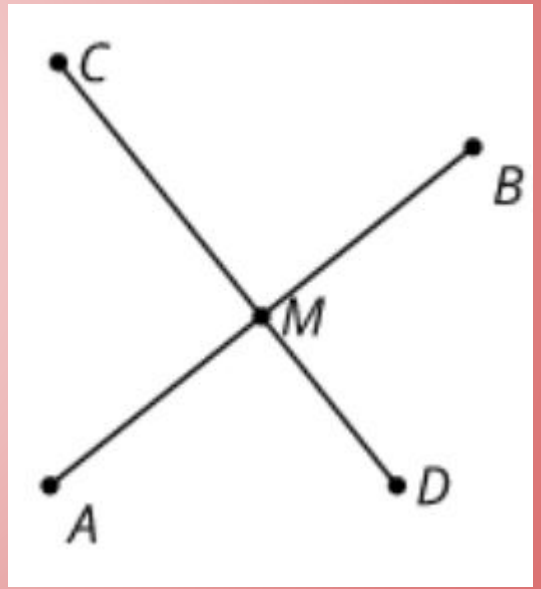
Segment *CD* is the perpendicular bisector of segment *AB*. Find each transformation mentally.

A transformation that takes *A* to *B*.

A transformation that takes *B* to *A*.

A transformation that takes *C* to *D*.

A transformation that takes *D* to *C*.



17.2 Card Sort: How Did This Get There?

1. Your teacher will give you a set of cards that show transformations of figures.

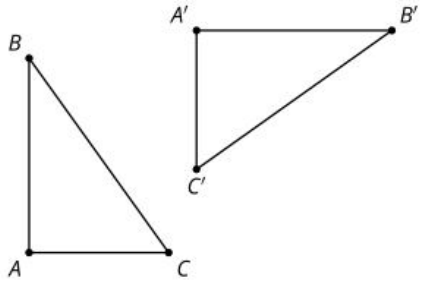
    a. Sort the cards into categories of your choosing. Be prepared to explain the meaning of your categories.

    b. Then sort the cards into categories in a different way. Be prepared to explain the meaning of your new categories.

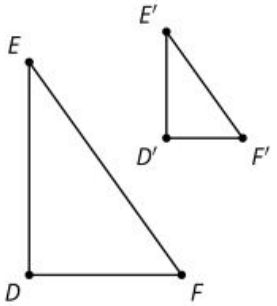
1. For each card with a rigid transformation: write a sequence of rotations, translations, and reflections to get from the original figure to the image. Be precise.

Work with your partner to complete your poster.

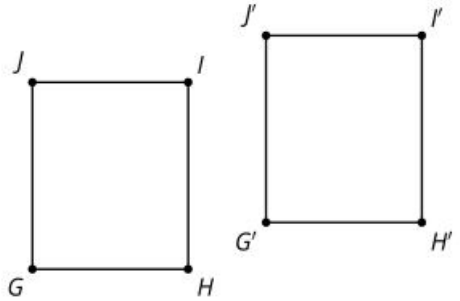
Card 1



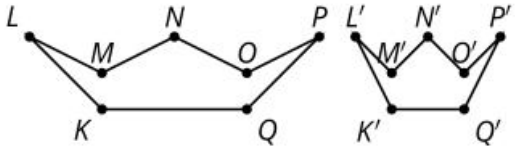
Card 2



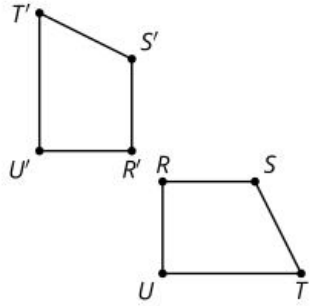
Card 3



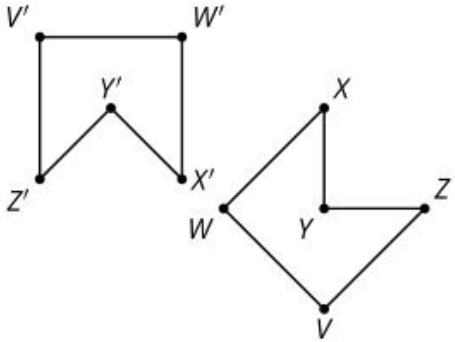
Card 4



Card 5

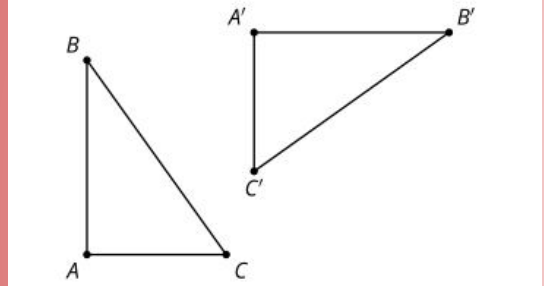


Card 6



Activity Synthesis

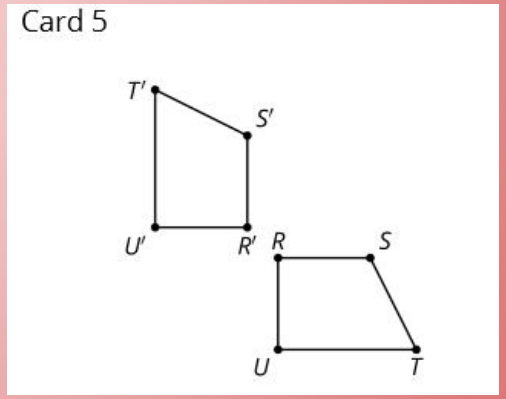
Card 1



How can we translate by the directed line segment from C to C’ , and then rotate by the angle formed at vertex C?

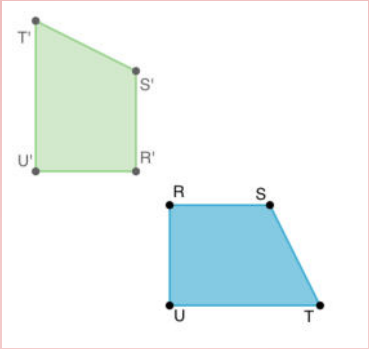
How is Card 5 transformed?

Card 5



17.3 Reflecting on Reflection

Work quietly, then compare with your partner.



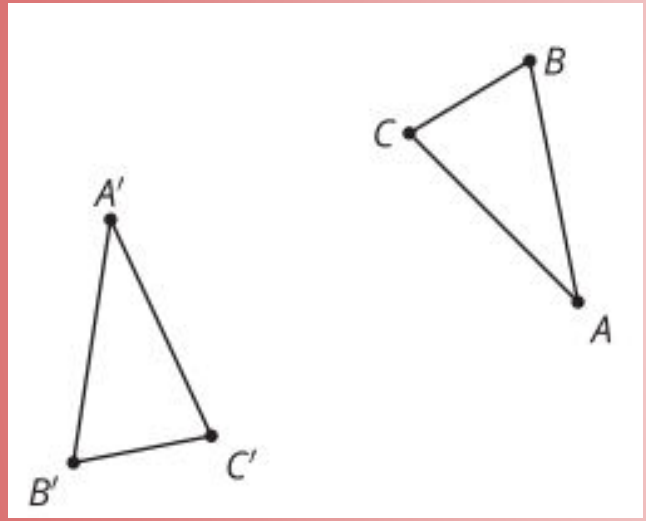
Diego says, “I see why a reflection could take *RSTU* to *R’S’T’U’*, but I’m not sure where the line of reflection is. I’ll just guess.”

1. How could Diego see that a reflection could work without knowing where the line of reflection is?
2. How could Diego find an exact line of reflection that would work?

Activity Synthesis

Share your responses

Lesson Synthesis



- Which triangle is the original and which is the image?
- What would be a sequence of transformations that would take triangle ABC onto triangle A’B’C’?
- Explain how you know the image of A coincides with A’ .
- Would that sequence work just for this one pair of congruent triangles, or would it work for other pairs of congruent triangles, too?