Defining Reflections

Illustrative Mathematics®

Learning Goal

- I can describe a reflection by specifying the line of reflection.
- I can draw reflections

11.1 Crossing the Line

which one doesn't belong?

Figure 1

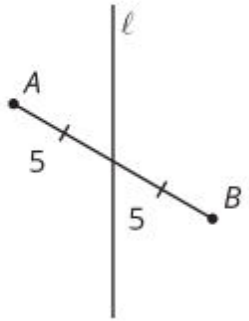


Figure 2

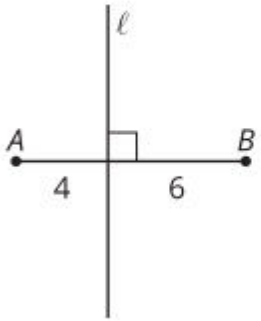


Figure 3

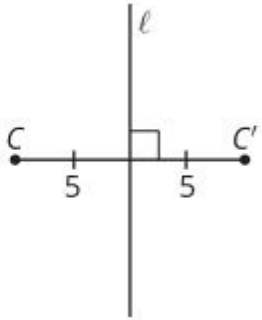
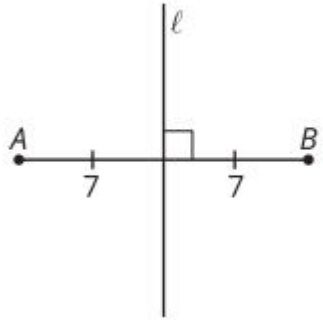
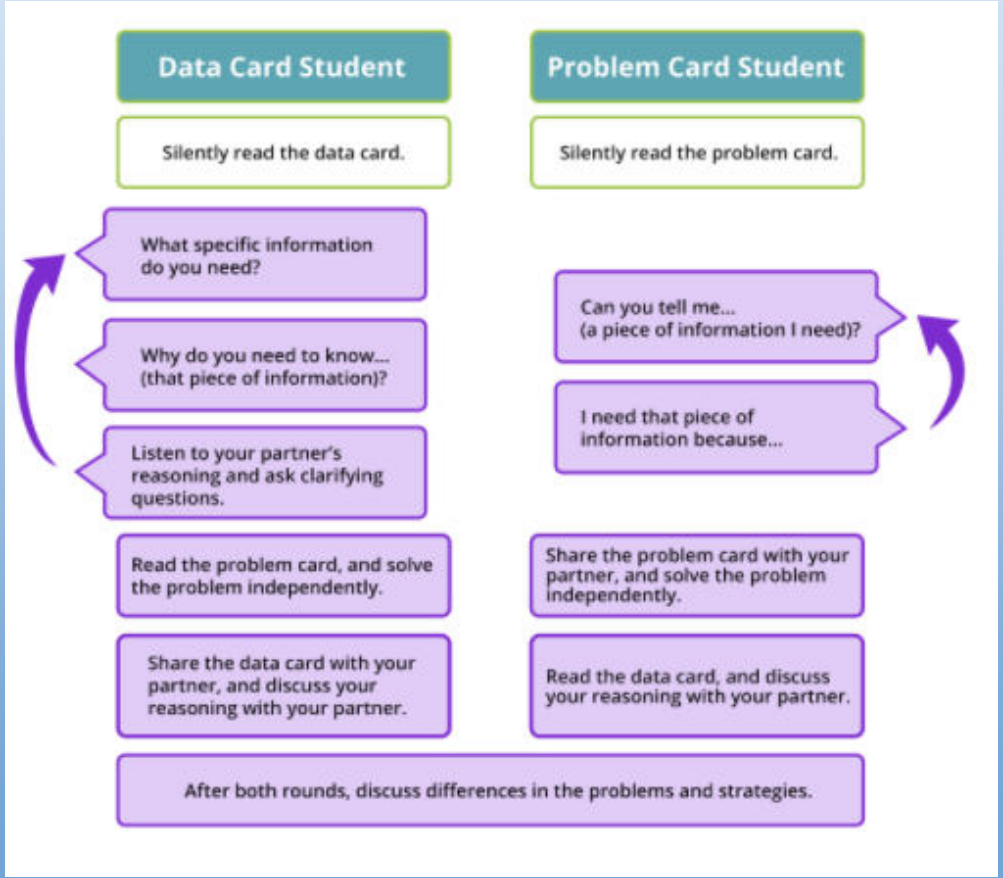


Figure 4



11.2 Info Gap: What's the Point: Reflections



11.2 Info Gap: What's the Point: Reflections

Problem Card 1:

Triangle *TDG* has been reflected so that the vertices of the image are labeled points. What is the image of triangle *TDG*?

What specific information do you need to find out what the image of the triangle is?

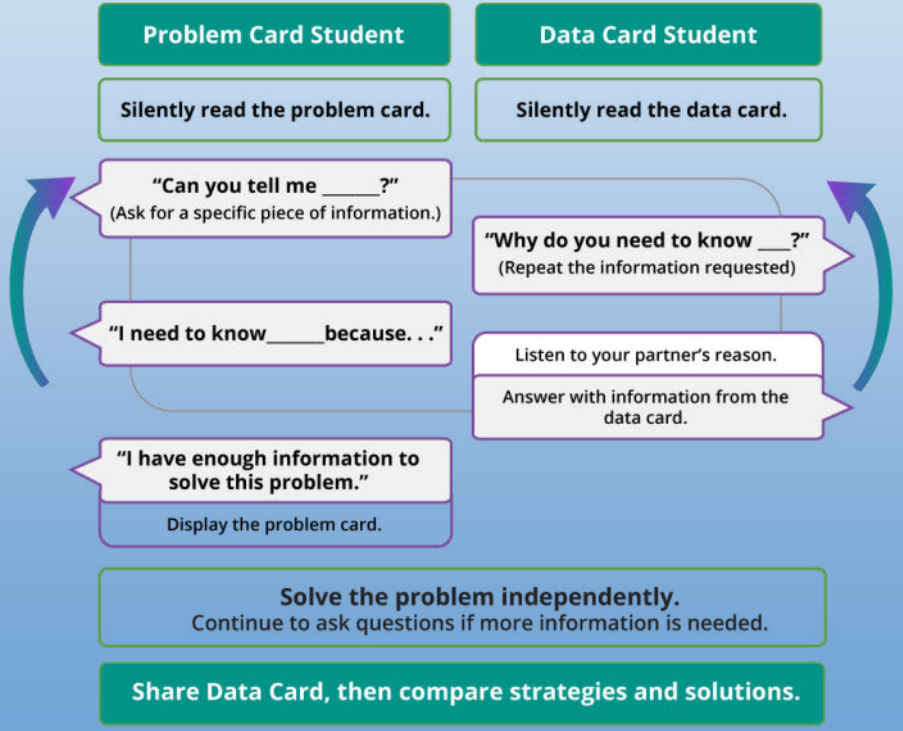
Why do you need that information?

11.2 Info Gap: What's the Point: Reflections

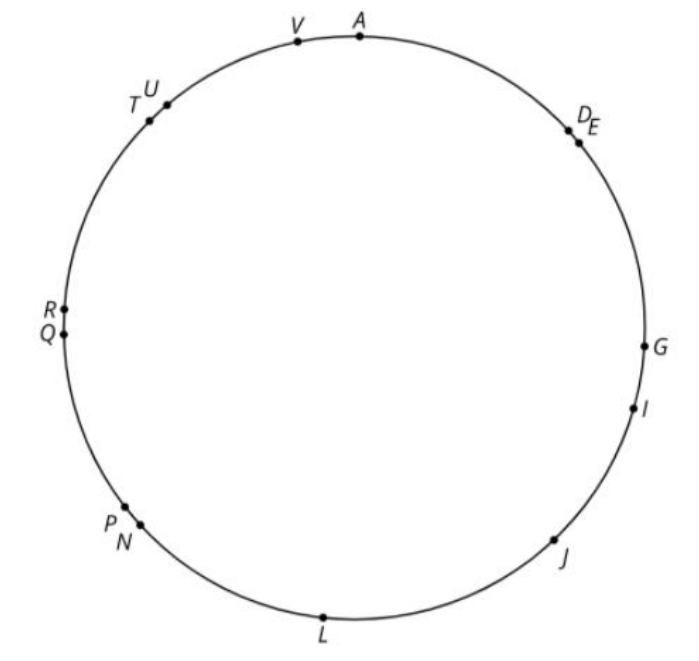
Work with your partner to complete Problem Card 2.

Problem Card 2

Several points have been reflected across a line that goes through 2 of the labeled points. Precisely describe the reflection.



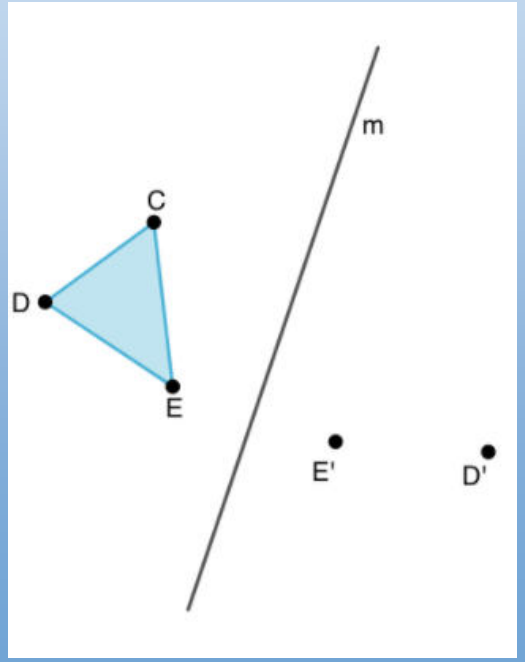
Activity Synthesis



- What should we expect to see if we made segments connecting points to their images?
- What kinds of questions were the most useful to ask?
- Were there any questions you weren't sure how to answer?
- How do you know if a point is on the line of reflection?
- What do you notice about points and their images?
- How can you test whether a point and its image are the same distance away from the line of reflection?

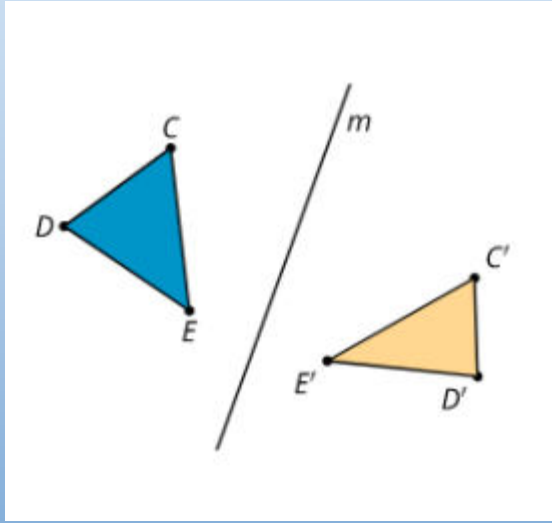
11.3 Triangle in the Mirror

Kiran started reflecting triangle *CDE* across line *m*. So far, he knows the image of *D* is *D'* and the image of *E* is *E'*.



1. Annotate the diagram to show how he reflected point *D*.
2. Use straightedge and compass moves to determine the location of *C'*. Then lightly shade in triangle *C'D'E'*.
3. Write a set of instructions for how to reflect any point *P* across a given line *l*.

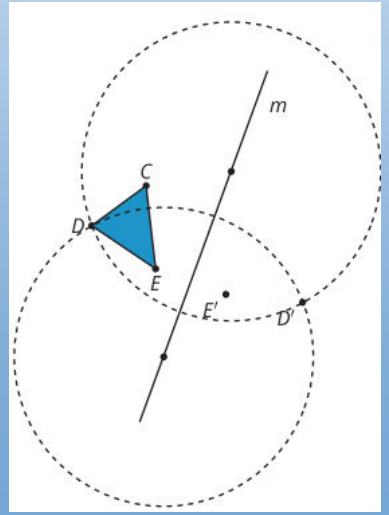
11.3 Triangle in the Mirror

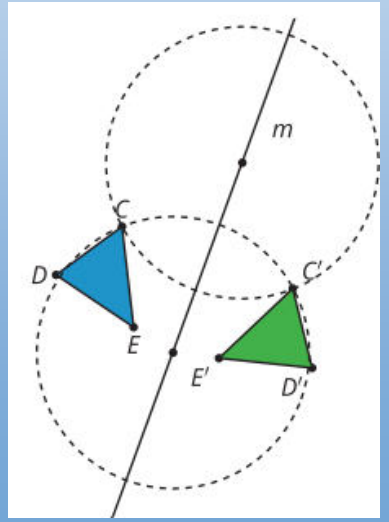


4. Elena found *C'* incorrectly: Elena is convinced that triangle *C'D'E'* "looks fine." Explain to Elena why her *C'* is not a reflection of point *C* across line *m*.

Activity Synthesis

Share your responses





Lesson Synthesis

Reflection is a rigid transformation that takes a point to another point that is the same distance from the given line, is on the other side of the given line, and so that the segment from the original point to the image is perpendicular to the given line.

Reflect _(object)_ across line _(name)_.