Lesson 1.08
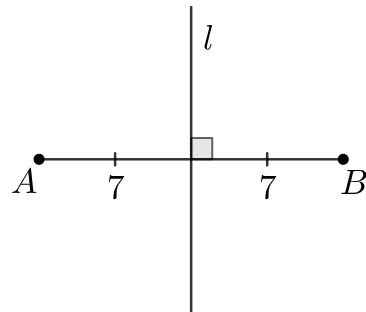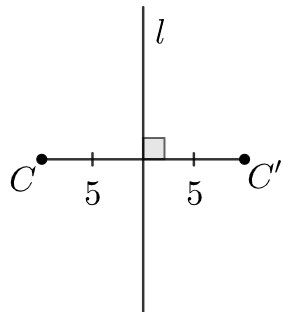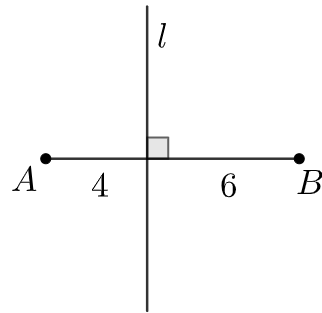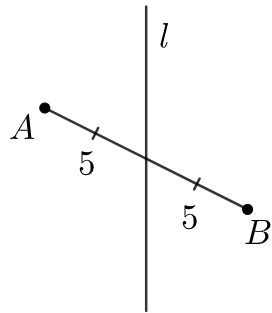# Reflections

Geometry GT

Analyze

Which one doesn't belong?

First, think to yourself, then share your choice and reasoning with a neighbor. Write any notes below.

Explore

DIRECTIONS: You and a partner will each receive a data card for a different scenario (do **not** show them to each other). For each scenario, the person *without* the data card will ask their partner for information to help solve the problem. Consider what information you need and why you need it.
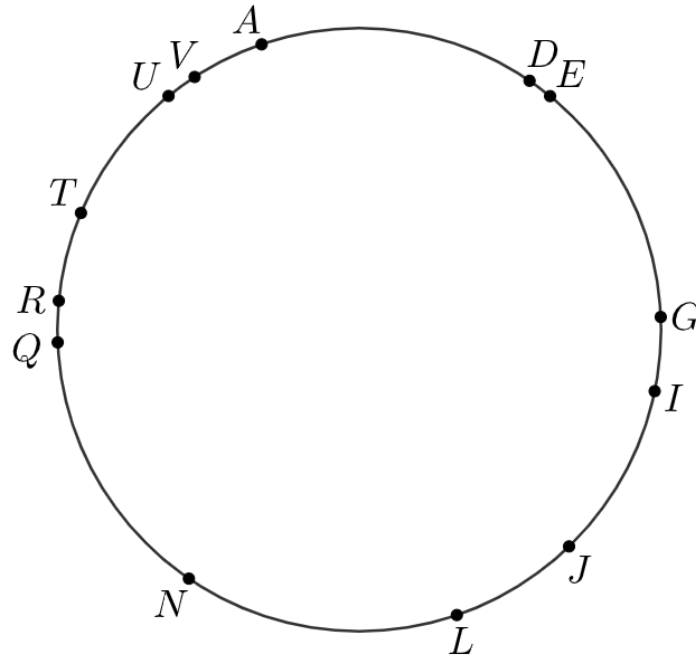

SCENARIO A: Triangle ΔGEN has been reflected so that the vertices of its image are labeled points. What is the image of ΔGEN?

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

Discuss

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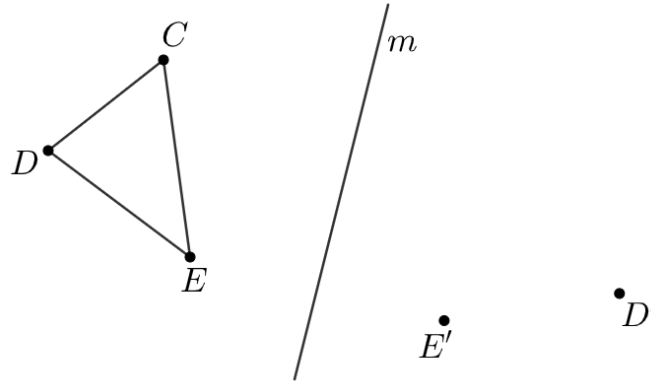

A. Annotate Cam's diagram to show how he reflected point D.

B. Use straightedge and compass moves to determine the location of C'. Then lightly shade in $\Delta C'D'E'$.

C. Write a set of instructions for how to reflect any point P across a given line l.

Definition

Reflection: 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
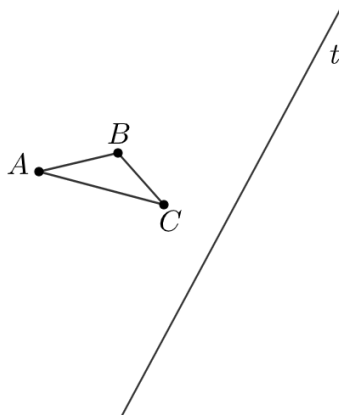
Demonstrate

Krish tried to reflect ΔABC across line t. He knows something went wrong because the image isn't congruent to the original figure.
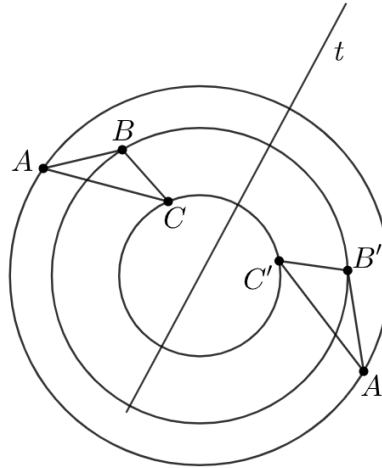
A. What is one idea that Krish does not understand about reflections?

B. Reflect ΔABC correctly.

Practice

1. Which of these construction would construct a line of reflection that takes point A to point B?

    A. Construct the perpendicular bisector of $\overline{AB}$

    B. Construct a line through B perpendicular to $\overline{AB}$

    C. Construct the line passing through A and B

    D. Construct a line parallel to $\overleftrightarrow{AB}$

2. A point P stays in the same location when it is reflected over line l. What can you conclude about P?

3. Lines l and m are perpendicular with point of intersection P. Maya says that a 180° rotation, with center P, has the same effect on points in the plane as reflecting over line m. Do you agree with Maya? Explain your reasoning.