Reflections with Patty Paper

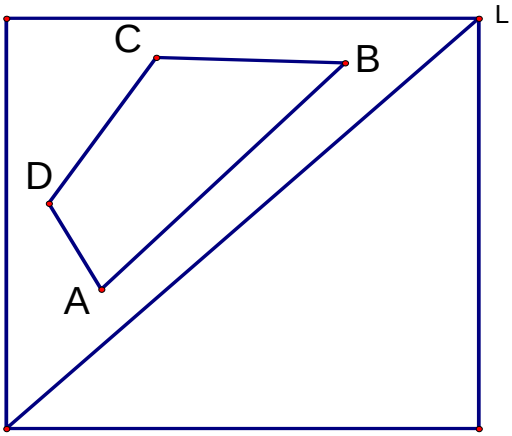

FIG. 1

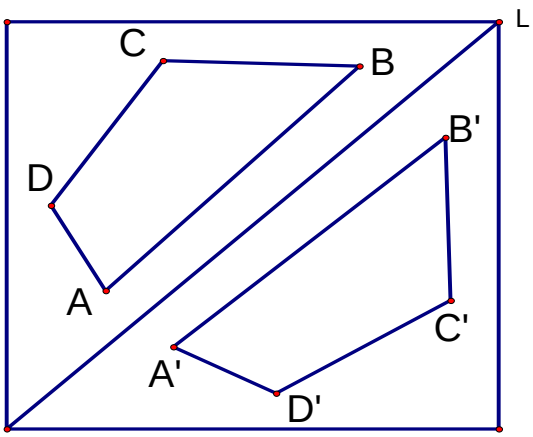

FIG. 2

Instructions:

1. Draw a diagonal across a piece of patty paper and label it L.

2. On one side of the diagonal, draw a quadrilateral (not a square or rectangle) and label it ABCD in a counterclockwise direction.

3. Fold the patty paper along the diagonal so that the figure shows on one side.

4. Trace the figure on the other half of the patty paper and label corresponding vertices A'B'C'D'.

5. Unfold the patty paper to see the pre-image (original figure) and its image on the right.

6. Connect D to D' and label the point of intersection of segment DD' with line L, point M. Connect B to B' and label the point of intersection of segment BB' with line L, point N. Describe the angles formed at points M and N.

Observations:

7. How would you describe point M? point N?

8. What is the relationship between line L and segments DD' and BB'?

9. How do the two quadrilaterals compare? How are they alike? How are they different?

10. How do the corresponding angles compare? How did you determine this?

11. What is the ratio of corresponding sides? What does this mean?

12. How do the perimeters of these quadrilaterals compare? areas?

13. What has been preserved in this transformation?

14. Does this transformation meet the conditions of an isometry? Explain.

15. Locate point P on the left side of line L in the exterior of quadrilateral ABCD. Describe how you could find its image without folding the patty paper along line L.
16. How could you reflect any polygon about line L without folding along line L?