

Reflections over Two Lines

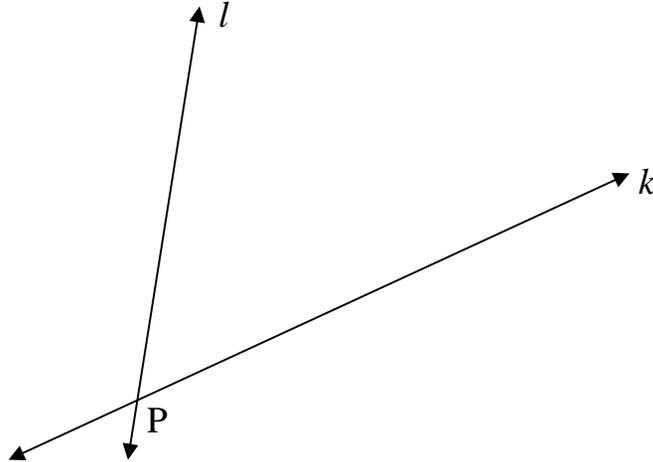
1. a. Lines l and k below are a pair of parallel lines. On the left of line l , draw a small polygon near line l . Label the vertices A , B , C , etc.



- b. Use the Mira™ to reflect the figure over line l . Label the corresponding vertices of the image A' , B' , C' , etc.
- c. Now use the Mira™ to reflect the image over line k . Label the new image corresponding vertices as A'' , B'' , C'' , etc.
- d. Draw the segment connecting vertices A and A'' . Draw the segment connecting B and B'' . Draw the segment connecting another pair of corresponding vertices. Compare the lengths of each segment drawn.
- e. Write a statement comparing the size of the figures, positions relative to the lines of reflection, and orientation of the figure and its second image.

Reflections over Two Lines (Continued)

2. a. Lines l and k intersect at point P . On the left of line l , draw a small polygon near line l . Label the vertices A , B , C , etc.



- b. Use the Mira™ to reflect the figure over line l . Label the corresponding vertices of the image A' , B' , C' , etc.
- c. Now use the Mira™ to reflect the image over line k . Label the new image corresponding vertices as A'' , B'' , C'' , etc.
- d. Draw the segment connecting vertices A and A'' . Draw the segment connecting B and B'' . Draw the segment connecting another pair of corresponding vertices. Compare the lengths of each segment drawn.
- e. Write a statement comparing the size of the figures, positions relative to the lines of reflection, and orientation of the figure and its second image.

- Answers:
1.
 - a.-c. Answers will vary.
 - d. The lengths of the segments $\overline{AA''}$, $\overline{BB''}$, and $\overline{CC''}$ are all the same (congruent).
 - e. The size of the figures is the same, the positions are on opposite sides of the lines of reflection and the same distance from the line over which it was reflected, and the orientation of the pre-image to the second reflection is the same.
 2.
 - a.-c. Answers will vary.
 - d. The lengths of the segments $\overline{AA''}$, $\overline{BB''}$, and $\overline{CC''}$ are all the same (congruent).
 - e. The size of the figures is the same, the positions are on opposite sides of the line of reflection and the same distance from the line over which it was reflected, and the orientation of the pre-image to the second reflection is a rotation about the point P.