ACTIVITY 7.2

Developing Concepts

Group Activity for use with Lesson 7.2

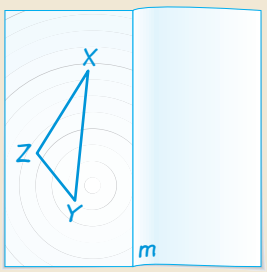
Reflections in the Plane

GROUP ACTIVITY
Work with a partner.

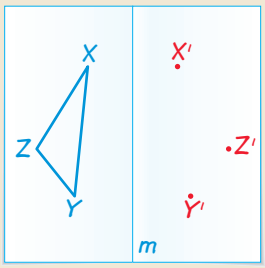
MATERIALS
- tracing paper
- pencils
- ruler
- protractor

QUESTION **What is the relationship between the line of reflection and the segment connecting a point and its image?**

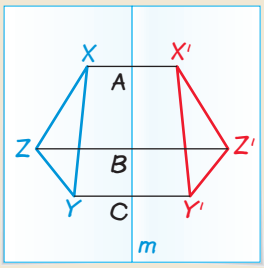
EXPLORING THE CONCEPT



1 Fold a piece of tracing paper in half. Open the paper and label the fold line m. Draw a scalene triangle, $\triangle XYZ$, on one side of line m.



2 Fold the tracing paper on line m and trace points X, Y, and Z on the back of the paper. Open the paper and label the reflected points X', Y', and Z'.

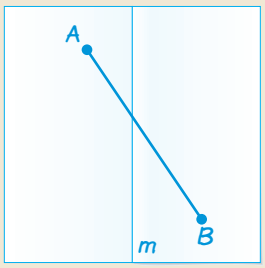


3 Draw $\triangle X'Y'Z'$. Then draw $\overline{XX'}$, $\overline{ZZ'}$, and $\overline{YY'}$. Label the points where these segments intersect line m as A, B, and C respectively.

INVESTIGATE

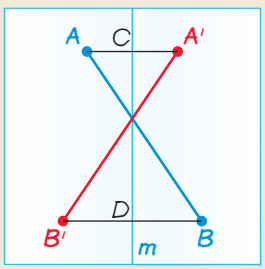
1. Measure and compare $\overline{XA}$ and $\overline{AX'}$, $\overline{ZB}$ and $\overline{BZ'}$, and $\overline{YC}$ and $\overline{CY'}$.
2. Measure and compare $\angle XAB$, $\angle ZBA$, and $\angle YCB$.
3. How does line m relate to $\overline{XX'}$, $\overline{ZZ'}$, and $\overline{YY'}$?

EXPLORING THE CONCEPT



4 Fold a piece of tracing paper in half and label the fold line m. Draw $\overline{AB}$ as shown. Then draw its reflection in line m.

5 Draw $\overline{AA'}$ and $\overline{B'B}$. Label the points where these segments intersect line m as C and D as shown.



MAKE A CONJECTURE

4. How does line m relate to $\overline{AA'}$ and $\overline{BB'}$? Explain your answer.
5. How does the line of reflection relate to the segment connecting a point and its image?