

Reflections Across a Line

Name: _____ Date: _____

LEARNING OBJECTIVE

Students will reflect a polygon across the x-axis and y-axis using tracing paper and coordinate rules, and verify their results by measuring.

MATERIALS NEEDED

- graph paper
- ruler
- pencil
- tracing paper or wax paper
- colored pencils

HANDS-ON ACTIVITY

1. On graph paper, plot quadrilateral WXYZ at W(2,1), X(5,1), Y(5,4), Z(2,3) and connect the points. Color it blue.
2. Place a piece of tracing paper over your graph and trace the x-axis and quadrilateral WXYZ exactly.
3. Flip the tracing paper over (like a mirror) along the x-axis line, keeping the axis aligned, and press to see where each point lands. Mark these new points on your graph paper as W', X', Y', Z' and connect them in red.
4. Write the coordinate rule for a reflection across the x-axis, then check it matches the points you found by tracing: $(x, y) \rightarrow (x, -y)$.
5. Use your ruler to measure the distance from W straight down to the x-axis, and from W' straight up to the x-axis. Confirm the distances are equal.

QUESTIONS

1. What are the coordinates of W', X', Y', and Z' after reflecting across the x-axis?
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2. What is the general rule for reflecting a point across the x-axis? Across the y-axis?
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3. Was the distance from W to the x-axis equal to the distance from W' to the x-axis? What does this confirm about reflections?

4. Is quadrilateral $W'X'Y'Z'$ congruent to $WXYZ$? Explain using what you measured.
