



Transformations on coordinates

GRADE 8 MATH

Name _____

Date _____

Squared paper. Give coordinates exactly, and say what happened to the figure's size each time.

WORKED EXAMPLE

Translation adds. Reflection flips one sign — the axis you reflect in is the coordinate that survives. Rotation swaps and changes a sign. Dilation multiplies: lengths $\times k$, area $\times k^2$. Only the dilation changes size.

1. Write the coordinate rule for a translation of a right and b up.

FLUENCY

Show your thinking

Answer

2. Write the coordinate rules for reflecting in the x-axis and in the y-axis.

FLUENCY

Show your thinking

Answer

3. Translate $(2,1)$, $(6,1)$, $(2,4)$ by 3 left and 2 up. Give the corners.

APPLICATION

Show your thinking

Answer

4. Rotate $(2,1)$, $(6,1)$, $(2,4)$ by 90° anticlockwise about the origin. Give the corners.

APPLICATION

Show your thinking

Answer

5. Rotate the same triangle 180° about the origin. Give the corners.

APPLICATION

Show your thinking

Answer

6. Dilate the same triangle by scale factor 3 about the origin, and give its area. The original's area is 6.

APPLICATION

Show your thinking

Answer

7. Priya says rotating 90° means swapping the coordinates, so (2,4) becomes (4,2). What transformation has she actually described?

REASONING

Show your thinking

Answer

8. A figure is dilated by scale factor 2. Its area was 5. What is the new area, and why is it not 10?

REASONING

Show your thinking

Answer

9. Which of the four transformations change a figure's size? Explain how you can tell from the rule alone.

REASONING

Show your thinking

Answer