



GRADE 8 · GEOMETRY · HOMEWORK

TRANSFORMATIONS ON COORDINATES

Today's goal: I can describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.



Pick your peppers!

Everyone does Mild & Medium. Then climb as high as you can.



Medium
Digit the Fox



Spicy
Blaze the Dragon



Extra Spicy
Pi the Owl



REMEMBER Translation adds; reflection flips one sign (the axis you reflect in survives); rotation swaps and changes a sign; dilation multiplies. Lengths $\times k$, area $\times k^2$. Only dilation changes size.



FAMILY CORNER

No need to remember this math yourself! Ask your student to teach you Mr DJ's example, then try the first Mild problem together.



MEDIUM

Digit the Fox: Stretch your brain.

- 1 Reflect (3,2), (7,2), (3,5) in the y-axis. Give the corners.

Grid area for problem 1

Answer

Answer box for problem 1

- 2 Dilate (1,2), (3,2), (1,6) by scale factor 4 about the origin. Give the corners.

Grid area for problem 2

Answer

Answer box for problem 2

- 3 A square has side 3 and area 9. It is dilated by scale factor 5. Give the new side and area.

Answer



OOPS ALERT

Careful on #1! The slip Mr DJ sees most: Flipped y instead, which is the x-axis reflection.



SPICY

Blaze the Dragon: Bring the heat!

- 4 Explain why adding 5 to every coordinate does not enlarge a figure.

Answer

- 5 Rotate (4,1) by 90° anticlockwise about the origin, then by 90° anticlockwise again. What single transformation has the same effect?

Answer

6 A figure's area is multiplied by 16 after a dilation. What was the scale factor?

Answer

7 Which transformations preserve the direction the corners are read in, and which reverse it?

Answer



EXTRA SPICY

Pi the Owl: Big-brain challenge.

8 Why does the standard ask you to describe the EFFECT of each transformation rather than only its rule?

Answer



How did this sheet feel?

☐

Easy for me

☐

Just right

☐

Made me think

Stuck? Watch Mr DJ explain it

"Translations on the Coordinate Plane" on YouTube:
youtube.com/@MathWithMrDJ

Brain break: daily puzzles

Three new math puzzles every day, free:
puzzles.mathwithmrdj.com