

Watch. Practice. Understand. | Lesson 052

The Hidden Formulas of Transformation with Reflection, Translation, Rotation and Dilation

Watch the matching video: https://www.youtube.com/watch?v=_s-8BQWY0lc

Practice focus: Geometric transformations and tessellations

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Reflect $(3, -2)$ across the y -axis.

02 Rotate $(3, -2)$ 90° counterclockwise about the origin.

03 Dilate $(3, -2)$ by factor 2 about the origin, then translate by $(-1, 4)$.

04 Can congruent regular pentagons tile the plane edge-to-edge by themselves? Explain.

Worked answers | Lesson 052

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Practice focus: Geometric transformations and tessellations

Original extra practice matched to the listed lesson topic.

01 Reflect (3, -2) across the y-axis.

Negate x: (-3, -2).

02 Rotate (3, -2) 90° counterclockwise about the origin.

Use $(x, y) \rightarrow (-y, x)$: (2, 3).

03 Dilate (3, -2) by factor 2 about the origin, then translate by (-1, 4).

Dilation gives (6, -4); translation gives (5, 0).

04 Can congruent regular pentagons tile the plane edge-to-edge by themselves? Explain.

No. Each interior angle is 108° , and $360/108$ is not an integer, so angles cannot close around a vertex.