

PYRAMID SUM Puzzle

TRANSFORMATIONS Pyramid Sum Puzzle

D Rotate point D 180° about the origin.

$(-5, -3)$

L Reflect point G in the line $y = x$.

$(7, -2)$

C Dilate point C using a scale factor of 3.

$(-6, -5)$

$(9, 2)$

$(-1, 4)$

F Dilate point A using a scale factor of $1/2$.

$(-2, -5)$

K Translate point E under the rule $(x, y) \rightarrow (x - 9, y - 14)$.

$(1, -7)$

O Rotate point E 270° counterclockwise about the origin.

$(3, -3)$

G Rotate point D 90° counterclockwise about the origin.

$(8, 6)$

I Dilate point F using a scale factor of $3/2$.

$(-3, -6)$

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*Reflections, Translations,
Rotations, & Dilations*

Created by: ALL THINGS ALGEBRA®

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Pyramid Sum Puzzle

Objective: To practice identifying the coordinates of a point under a given transformation, including: reflections, translations, rotations, and dilations. Reflections include the x-axis, y-axis, $y = x$, vertical lines, and horizontal lines. Rotations include 90° , 180° , and 270° about the origin. For all dilation problems, the origin is the center of dilation.

Activity Directions:

- 1) Print the puzzle pieces and template for each student (pages 3-4 of this document). I like to do the template on colored paper and the puzzle pieces on white paper to make the final product pop!
- 2) There are seven points given at the top. Each problem describes a transformation and references one of the points above. Students find the coordinates of the point under the given transformation, then write the coordinates in the box. You may find it beneficial to either print graph paper, or have students use notebook paper to draw sketches.
- 3) Students cut the problems out and arrange the top row according to the letters on the template. Then, they must arrange the remaining boxes so that each solution is the sum of the x-coordinates and y-coordinates directly above it. Paste all pieces down.

An answer key is provided on page 5. This assignment is VERY easy to grade with the box letters and solutions!

TRANSFORMATIONS *Pyramid Sum Puzzle*

Directions: Using the points below, find the coordinates of the point under each transformation. Record the coordinates in the boxes. Cut out the boxes and paste D, L, C, E, and J on the top row template. Paste the remaining boxes so that the solution to each problem is the sum of the x-coordinates and y-coordinates directly above it. Assume all dilations use the origin as the center of dilation.

A(-6, -4) B(-4, 7) C(-3, 1) D(6, 1) E(7, 2) F(-2, -4)

A Reflect point B in the y-axis. <input type="text"/>	B Translate point F under the rule $(x, y) \rightarrow (x, y + 5)$. <input type="text"/>	C Dilate point C using a scale factor of 3. <input type="text"/>	D Rotate point D 180° about the origin. <input type="text"/>	E Reflect point E across the y-axis. <input type="text"/>
F Dilate point A using a scale factor of $1/2$. <input type="text"/>	G Rotate point D 90° counterclockwise about the origin. <input type="text"/>	H Translate point A under the rule $(x, y) \rightarrow (x + 7, y - 6)$. <input type="text"/>	I Dilate point F using a scale factor of $3/2$. <input type="text"/>	J Reflect point J across the x-axis. <input type="text"/>
K Translate point E under the rule $(x, y) \rightarrow (x - 2, y - 14)$. <input type="text"/>	L Reflect point G in the line $y = x$. <input type="text"/>	M Rotate point C 90° counterclockwise about the origin. <input type="text"/>	N Reflect point G in the line $x = -2$. <input type="text"/>	O Rotate point B 270° clockwise about the origin. <input type="text"/>

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TRANSFORMATIONS *Pyramid Sum Puzzle* Name: _____

D	L	C	E	J

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