**CMIC 2 – Unit 3 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Size Transformations Unraveled**

1. On a coordinate grid, draw the following geometrical shape, $XYZ=\left[\begin{matrix}1&5&5\\1&1&5\end{matrix}\right]$.
	1. Add the following shape to the same graph in a different color, $X'Y'Z'=\left[\begin{matrix}2&10&10\\2&2&10\end{matrix}\right]$.



|  |  |
| --- | --- |
| **Pre-Image** | **Translation Image** |
| X | (1, 1) | X′ | (2, 2) |
| Y | (5, 1) | Y’ | (10, 2) |
| Z | (5, 5) | Z’ | (10, 10) |

To change from the pre-image to the translation image, create a **coordinate rule** by filling in the blanks.

(x, y) → (\_\_x, \_\_y)

1. A size transformation (or dilation) of magnitude 3 centered at the origin is defined by the following rule:

$$\begin{matrix}preimage&&image\\(x, y)&\rightarrow &(3x, 3y)\end{matrix}$$

* 1. If all points are multiplied by 3 in this size transformation, what would be the **matrix** for the transformation?

$$ABCD=\left[\begin{matrix}\begin{matrix}1&3\\2&1\end{matrix}&\begin{matrix}-1&1\\-2&-3\end{matrix}\end{matrix}\right] \rightarrow A^{'}B^{'}C^{'}D^{'}=\left[\begin{matrix}\begin{matrix}&\\&\end{matrix}&\begin{matrix}&\\&\end{matrix}\end{matrix}\right]$$

* 1. On the provided diagram, draw the image of quadrilateral *ABCD* under this size transformation.

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c. Compare and contrast the following characteristics

 between the *preimage* and *image* of the

 quadrilateral.

 Perimeter:

 Area: