Tell whether each transformation is a dilation.

1. No, figure did not enlarge or shrink.

2. Yes, scale factor of \( \frac{1}{2} \) of ABCD

Dilate each figure by the given scale factor with the origin as the center of dilation. What are the vertices of the image?

3. Scale factor of 2

4. Scale factor of \( \frac{1}{2} \)

\[
\begin{align*}
A' &= (2(-2,2)) = (4,-4) \\
B' &= (2(2,2)) = (4,4) \\
C' &= (2(2,-1)) = (4,-2) \\
D' &= (2(1,1)) = (2,2) \\
\end{align*}
\]

\[
\begin{align*}
A' &= (-3,3) \\
B' &= (-2,2) \\
C' &= (-1,3) \\
D' &= (-3,3) \\
\end{align*}
\]

5. Using the same graph from problem #4, dilate the original rectangle ABCD with point D as the center of dilation, with a scale factor of \( \frac{1}{2} \).
Practice

Transformations

Identify each as a translation, rotation, reflection, or none of these.

1. Rotation

2. Translation

Draw the image of the rectangle $ABCD$ with vertices $(-2, 1), (-1, 3), (3, 3), (2, 1)$ after each transformation.

3. Translation 3 units down

4. $180^\circ$ rotation around $(0, 0)$: $(x, y) \Rightarrow (-x, -y)$

Triangle $ABC$ has vertices $A(-3, 1), B(2, 4)$, and $C(3, 1)$. Find the coordinates of the image of each point after each transformation.

5. Reflection across the $x$-axis

6. Translation 6 units down

$A'(-3, 1); B'(2, -4); C'(3, 1)$

$A'(3, 5); B'(2, -2); C'(3, 5)$