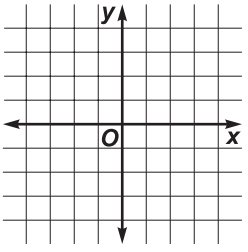
2-4

Practice

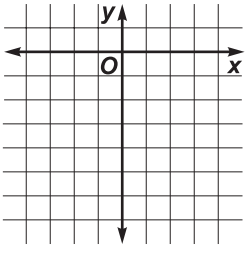
Modeling Motion with Matrices

Use scalar multiplication to determine the coordinates of the vertices of each dilated figure. Then graph the pre-image and the image on the same coordinate grid.

1. triangle with vertices $A(1, 2)$, $B(2, -1)$, and $C(-2, 0)$; scale factor 2

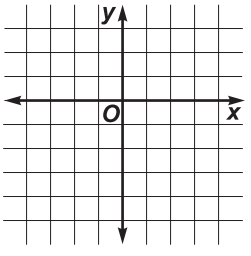


2. quadrilateral with vertices $E(-2, -7)$, $F(4, -3)$, $G(0, 1)$, and $H(-4, -2)$; scale factor 0.5

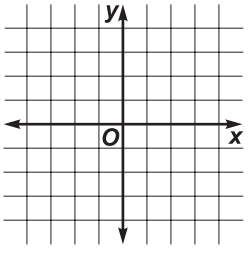


Use matrices to determine the coordinates of the vertices of each translated figure. Then graph the pre-image and the image on the same coordinate grid.

3. square with vertices $W(1, -3)$, $X(-4, -2)$, $Y(-3, 3)$, and $Z(2, 2)$ translated 2 units right and 3 units down

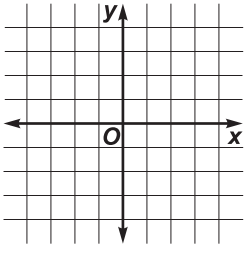


4. triangle with vertices $J(3, 1)$, $K(2, -4)$, and $L(0, -2)$ translated 4 units left and 2 units up

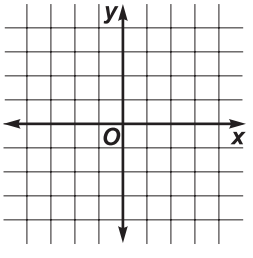


Use matrices to determine the coordinates of the vertices of each reflected figure. Then graph the pre-image and the image on the same coordinate grid.

5. $\triangle MNP$ with vertices $M(-3, 4)$, $N(3, 1)$, and $P(-4, -3)$ reflected over the y-axis

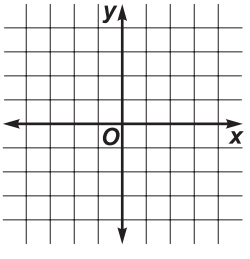
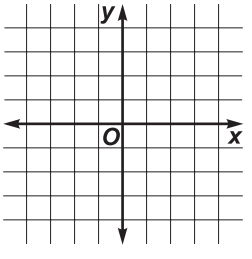


6. a rhombus with vertices $Q(2, 3)$, $R(4, -1)$, $S(-1, -2)$, and $T(-3, 2)$ reflected over the line $y = x$



Use matrices to determine the coordinates of the vertices of each rotated figure. Then graph the pre-image and the image on the same coordinate grid.

7. quadrilateral $CDFG$ with vertices $C(-2, 3)$, $D(3, 4)$, $F(3, -1)$, and $G(-3, -4)$ rotated 90°



8. Pentagon $VWXYZ$ with vertices $V(1, 3)$, $W(4, 2)$, $X(3, -2)$, $Y(-1, -4)$, $Z(-2, 1)$ rotated 180°