

Use graph paper to answer questions 1 – 10.

Graph each figure and its image under the given reflection.

- $\triangle ABN$ with vertices $A(2, 2)$, $B(3, -2)$, and $N(-3, -1)$ in the x -axis
- rectangle $BARN$ with vertices $B(3, 3)$, $A(3, -4)$, $R(-1, -4)$, and $N(-1, 3)$ in the line $y = x$
- $\triangle PQR$ with vertices $P(-2, 1)$, $Q(2, -2)$, and $R(-3, -4)$ in the y -axis

Graph each figure and its image along the given vector.

- $\triangle ABC$ with vertices $A(1, 6)$, $B(3, 2)$, and $C(4, 7)$; $\langle 4, -1 \rangle$
- $\square WXYZ$ with vertices $W(-3, -1)$, $X(1, -1)$, $Y(2, -4)$, and $Z(-2, -4)$; $\langle -3, 4 \rangle$

Graph each figure and its image after the specified rotation

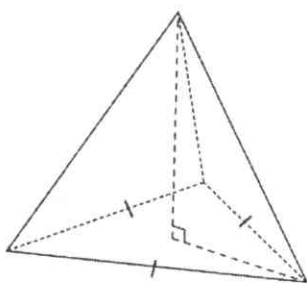
- $\triangle KLM$ with vertices $K(4, 2)$, $L(1, 3)$, and $M(2, 1)$; 90°
- $\triangle FGH$ with vertices $F(-3, -3)$, $G(2, -4)$, and $H(-1, -1)$; 180°
- parallelogram $MPQV$ has vertices $M(-6, 3)$, $P(-2, 3)$, $Q(-3, -2)$, and $V(-7, -2)$; 270°

Find the image of each polygon with the given vertices after a dilation centered at the origin with the given scale factor.

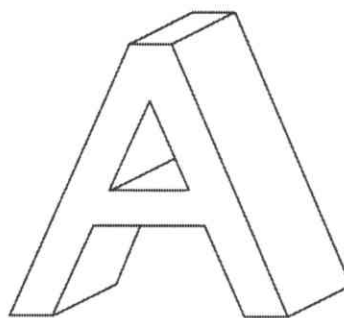
- $W(-2, 6)$, $X(4, 6)$, $Y(4, 2)$, $Z(-2, 2)$; $r = \frac{1}{2}$
- $A(1, 2)$, $B(3, 2)$, $C(4, 0)$, $D(0, 0)$; $r = 2.5$

State whether each figure has *plane symmetry*, *axis symmetry*, *both*, or *neither*.

11.

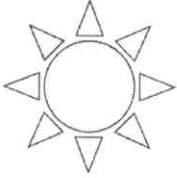


12.



State whether the figure has rotational symmetry. Write *yes* or *no*. If so, locate the center of symmetry, and state the order and magnitude of symmetry.

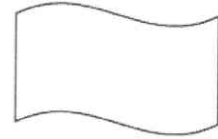
13.



14.

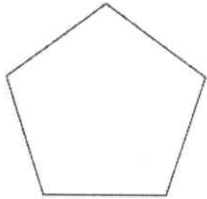


15.

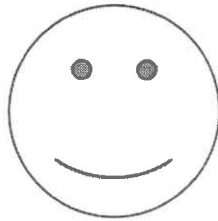


State whether the figure appears to have line symmetry. Write *yes* or *no*. If so, draw all lines of symmetry and state their number.

16.



17.



18.

