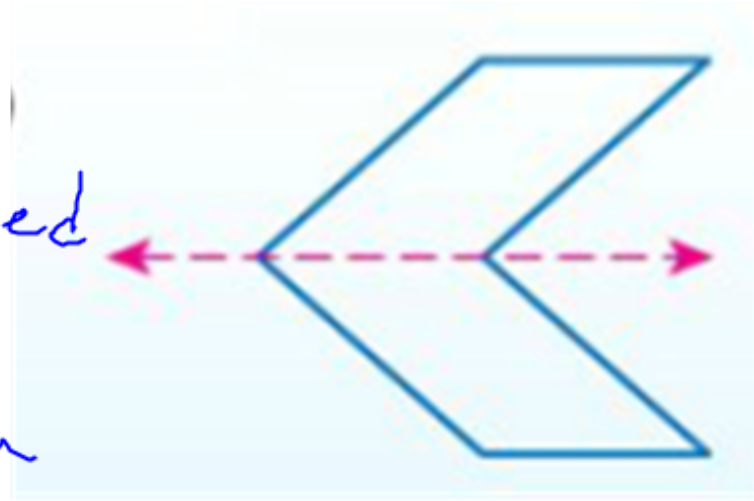


You will identify line and rotational symmetries in two-dimensional figures.

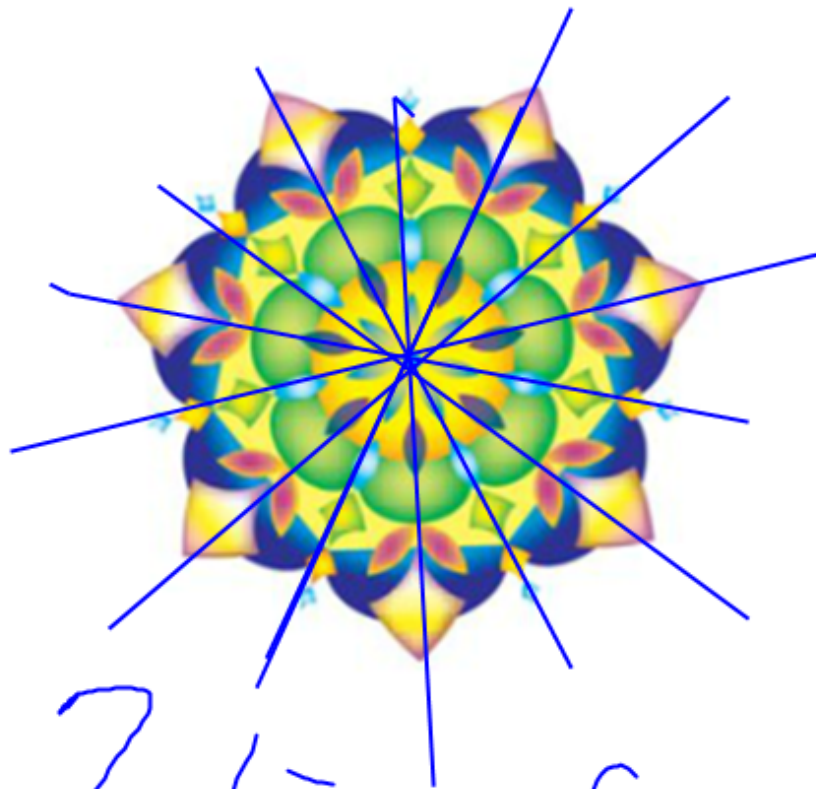
You will identify plane and axis symmetries in three-dimensional figures

Line Symmetry

every point is mapped
to a point across a
line of reflection



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

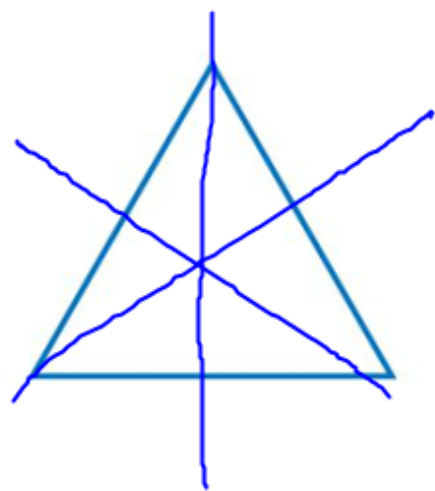


7 lines of symm.



no

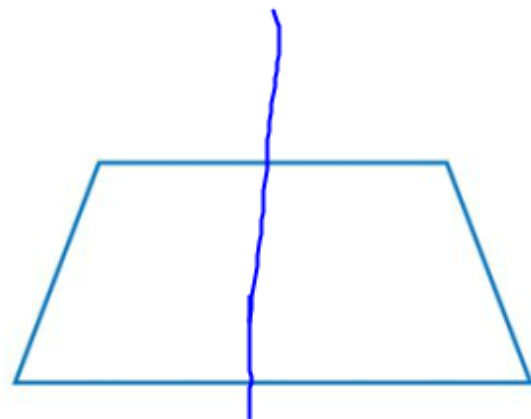
A. State whether the figure appears to have line symmetry. Write *yes* or *no*. If so, state their number.



yes 3



No



yes, 1

Rotational Symmetry

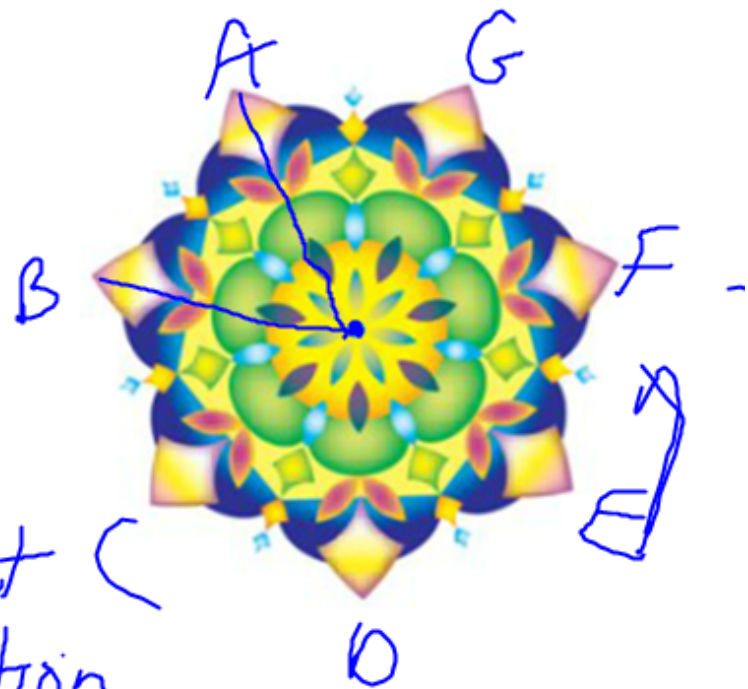
if you can map the points by rotating

Order of Symmetry

of rotations to get back to original position

Magnitude of symmetry

degree of rotation $\frac{360}{\text{order}}$

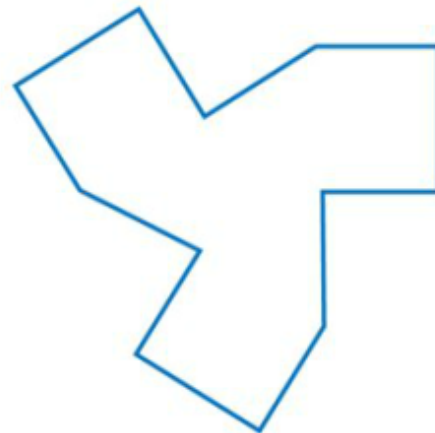


order 7
Magn
 $\frac{360}{7} = 51.42$

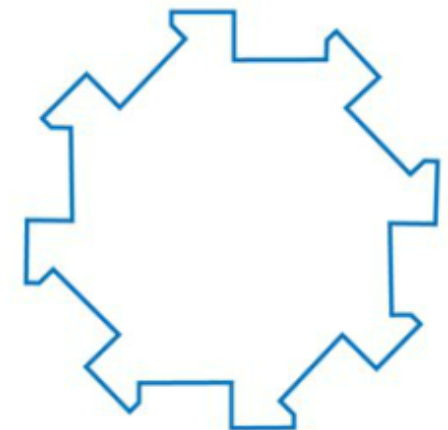
State whether the figure has rotational symmetry. Write yes or no. If so, locate the center of symmetry and state the order and magnitude of symmetry.



yes
order 5
Magn. $\frac{360}{5} = 72^\circ$



yes
order 3
Magn. $\frac{360}{3} = 120^\circ$



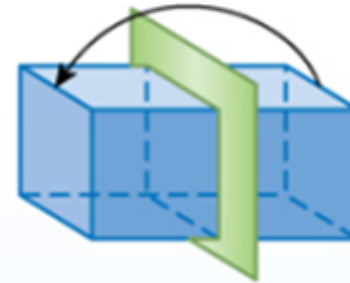
yes
order 8
Magn. $\frac{360}{8} = 45^\circ$

Key Concept

Three-Dimensional Symmetries

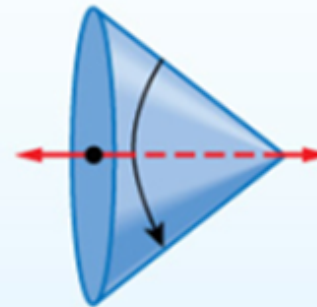
Plane Symmetry

A three-dimensional figure has **plane symmetry** if the figure can be mapped onto itself by a reflection in a plane.

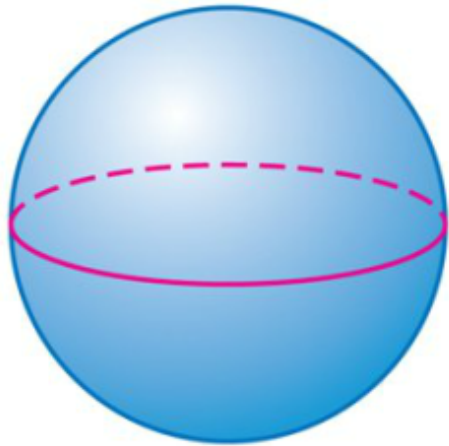


Axis Symmetry

A three-dimensional figure has **axis symmetry** if the figure can be mapped onto itself by a rotation between 0° and 360° in a line.



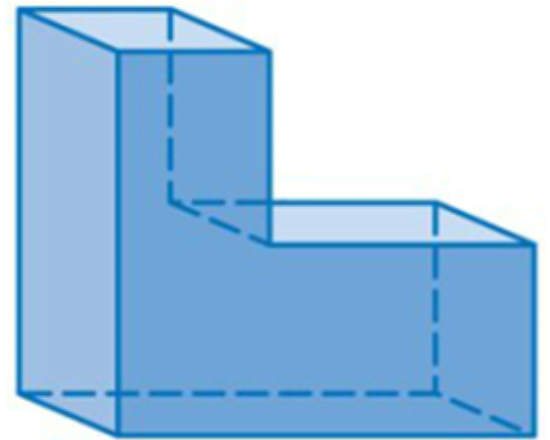
A. State whether the figure has *plane* symmetry, *axis* symmetry, *both*, or *neither*.



both



neither



plane symmetry