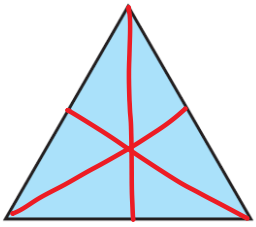
Key

9.5 NOTES: SYMMETRY

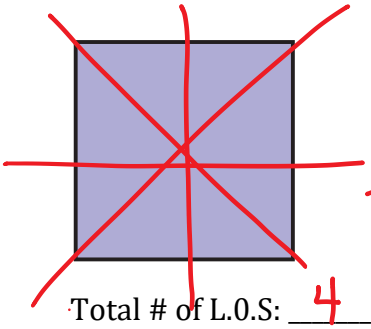
PART 1: LINE SYMMETRY

A figure has line symmetry if it can be reflected across a line so that the image coincides with the preimage. The line of symmetry, also called the axis of symmetry, divides the figure into two congruent halves.

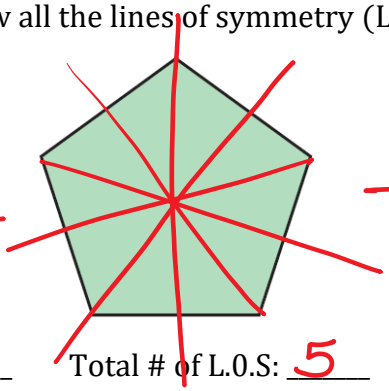
1. For each of the regular polygons below, draw all the lines of symmetry (L.O.S).



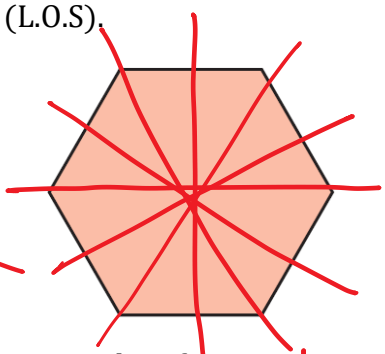
Total # of L.O.S: 3



Total # of L.O.S: 4



Total # of L.O.S: 5



Total # of L.O.S: 6

2. Look for a pattern. How many lines of symmetry does a regular n-gon have? n

key word here

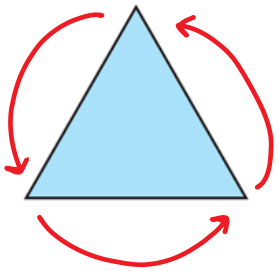
3. Circle the letters in the alphabet that contain a line of symmetry.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

PART 2: ROTATIONAL SYMMETRY

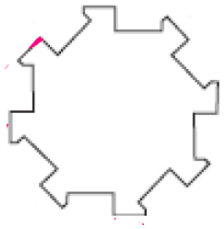
A figure has rotational symmetry (or radial symmetry) if it can be rotated about a point by an angle greater than 0° and less than 360° so that the image coincides with the preimage.

4. For each regular polygon, determine the order (the number of turns it takes for a figure to look exactly like itself). How many degrees of rotational symmetry does each figure have?



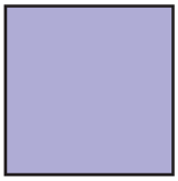
Order: 3

Degrees of Rotational Symmetry: 120°



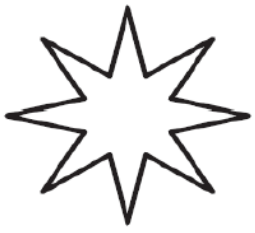
Order: 8

Degrees of Rotational Symmetry: 45°



Order: 4

Degrees of Rotational Symmetry: 90°



Order: 6

Degrees of Rotational Symmetry: 60°

Look for a pattern. How many degrees of rotational symmetry does a regular n-gon have? $\frac{360}{n}$

5. Tell whether each figure has rotational symmetry. If so, give the angle of rotational symmetry and the order of the symmetry.

none

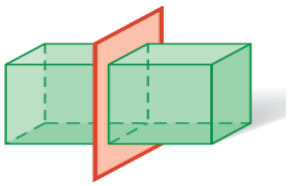
yes
order: 2, 180°

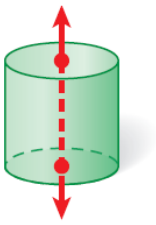
yes
order: 4, 90°

yes
order: 3, 120°

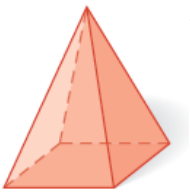
PART 3: PLANE SYMMETRY AND SYMMETRY ABOUT AN AXIS

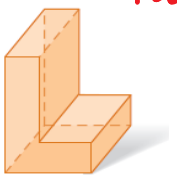
A three-dimensional figure has plane symmetry if a plane can divide the figure into two congruent reflected halves.

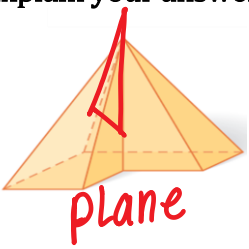




Tell whether the figure has plane symmetry, symmetry about an axis, both or neither. Explain your answer.

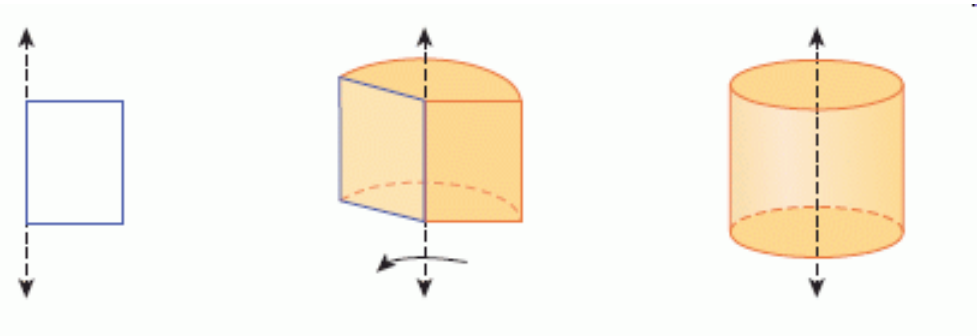
6. 
Both

7. 
Plane

8. 
Plane

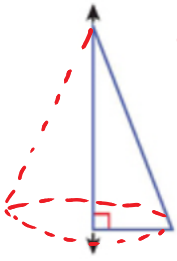
PART 4: SOLIDS OF REVOLUTION

A solid of revolution is a 3-D figure that is formed by rotating a 2-D shape around an axis.



Description: If you rotate a rectangle around one of its sides, the path it makes through space is a cylinder.

12. Draw the solid of revolution formed be the shape around the axis given. Describe the resulting shape.


a cone

cylinder w/ middle removed "paper towel roll"