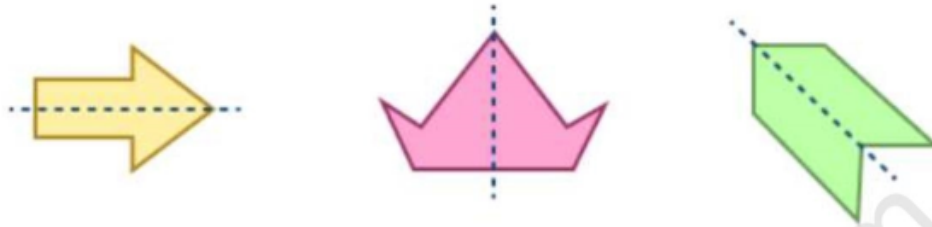


Introduction to Symmetry

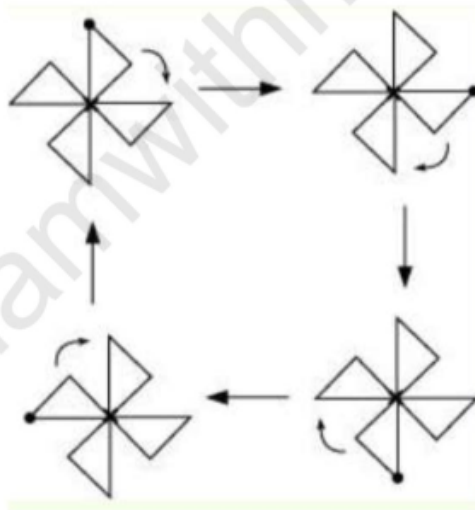
Line of symmetry



A line of symmetry is the line that divides a shape or an object into two equal and symmetrical parts.

One-half is the mirror image of the other half.



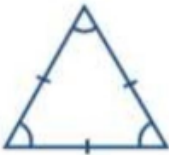
Rotational Symmetry



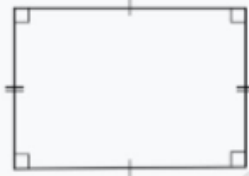

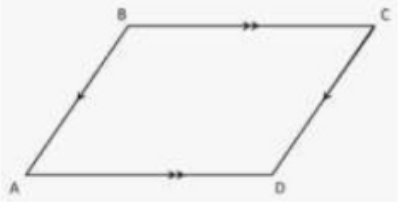
The given figure has its rotational symmetry as 4




The order of rotational symmetry of a shape is the number of times it can be rotated around a full circle and still look the same.

Symmetric Properties of Triangles



Triangle	Number of lines of symmetry	Order of rotational symmetry
 <p>Scalene Triangle</p>		
 <p>Isosceles Triangle</p>		
 <p>Equilateral Triangle</p>		

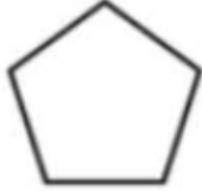


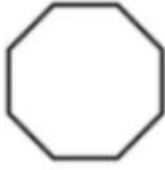
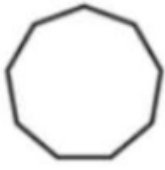
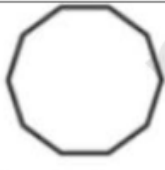
Symmetric Properties of Quadrilaterals

Quadrilateral	Number of lines of symmetry	Order of rotational symmetry
 <p>Rectangle</p>		
 <p>Square</p>		
 <p>Parallelogram</p>		

 <p>Rhombus</p>		
 <p>Isosceles Trapezium</p>		
 <p>Kite</p>		

Symmetric Properties of Regular Polygons

Polygon	Number of lines of symmetry	Order of rotational symmetry
 <p>Equilateral Triangle</p>		
 <p>Square</p>		

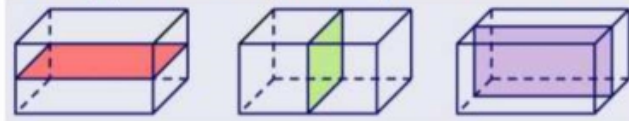
 <p>Regular Pentagon</p>		
 <p>Regular Hexagon</p>		
 <p>Regular Heptagon</p>		
 <p>Regular Octagon</p>		
 <p>Regular nonagon</p>		
 <p>Regular Decagon</p>		

Symmetry in 3 Dimension

Planes of Symmetry

In a 3-D shape, the mirror line is called **plane of symmetry**

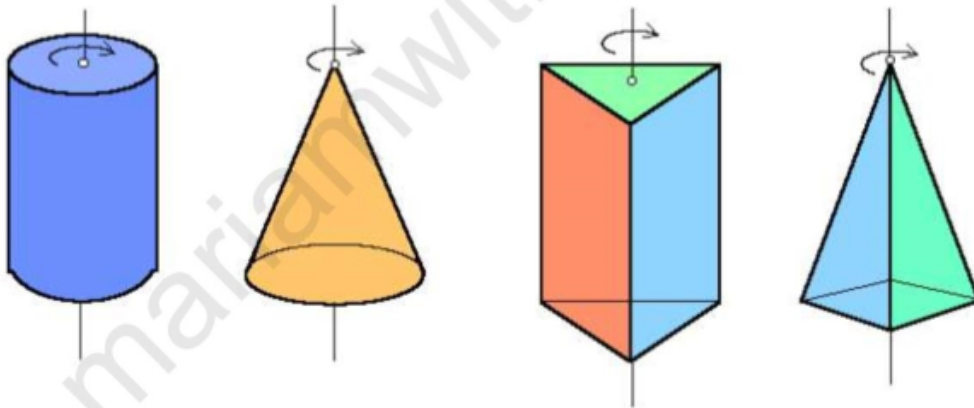
How many planes of symmetry does a cuboid have?

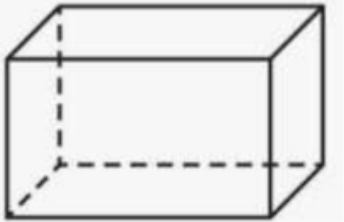
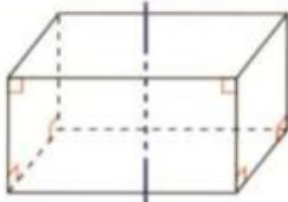


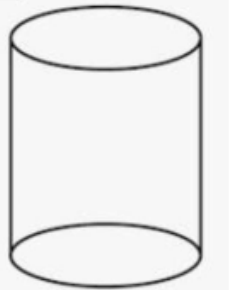

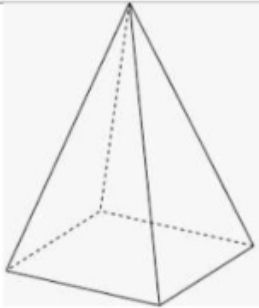
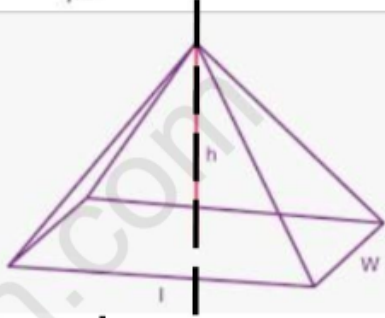
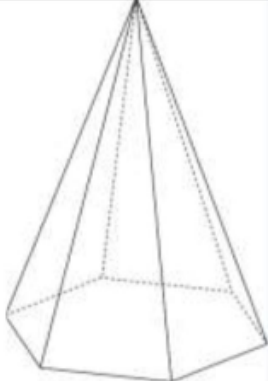
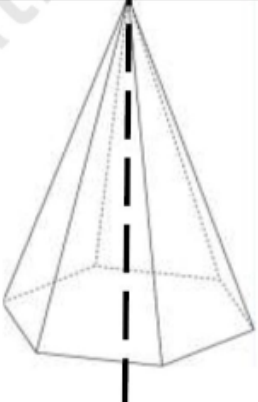

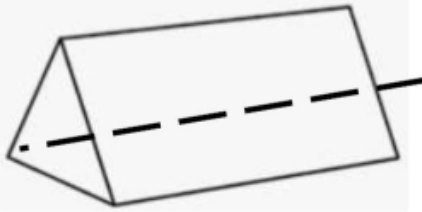
A cuboid has 3 planes of symmetry. You could cut the cuboid along the planes shown above and each half would look the same.

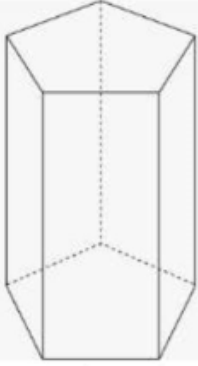
Order of Rotational Symmetry About Given Axis

In 3-D shapes, how many times a solid comes back to its original shape when rotated about the axis of symmetry is called the **order of rotational symmetry**.

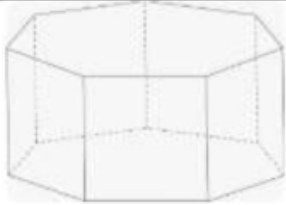


Solid	Number of Planes of Symmetry	Order of Rotational Symmetry about given axis
 cuboid		

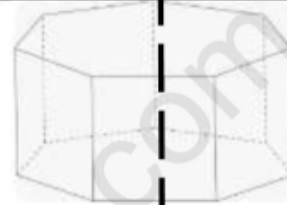
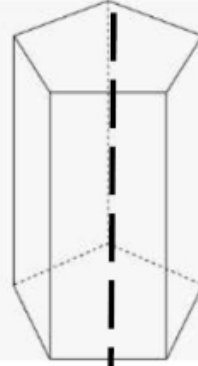
 <p>Cylinder</p>		
 <p>Right pyramid with rectangular base</p>		
 <p>Right pyramid with hexagonal base</p>		
 <p>Prism with equilateral triangle as base</p>		



Prism with regular pentagon as base



Prism with regular heptagon as base



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Answers

Triangle	Number of lines of symmetry	Order of rotational symmetry
Scalene Triangle	0	1
Isosceles Triangle	1	1
Equilateral Triangle	3	3

Quadrilateral	Number of lines of symmetry	Order of rotational symmetry
Rectangle	2	2
Square	4	4
Parallelogram	0	2
Rhombus	2	2
Isosceles Trapezium	1	1
Kite	1	1

Polygon	Number of lines of symmetry	Order of rotational symmetry
Equilateral Triangle	3	3
Square	4	4
Regular Pentagon	5	5
Regular Hexagon	6	6
Regular Heptagon	7	7
Regular Octagon	8	8
Regular nonagon	9	9
Regular Decagon	10	10

Solid	Planes of Symmetry	Rotational Symmetry
Cuboid	3	2
Cylinder	Infinite	Infinite
Right pyramid with rectangular base	2	2
Right pyramid with hexagonal base	6	6
Prism with equilateral triangle as base	4	3
Prism with regular pentagon as base	6	5
Prism with regular heptagon as base	8	7