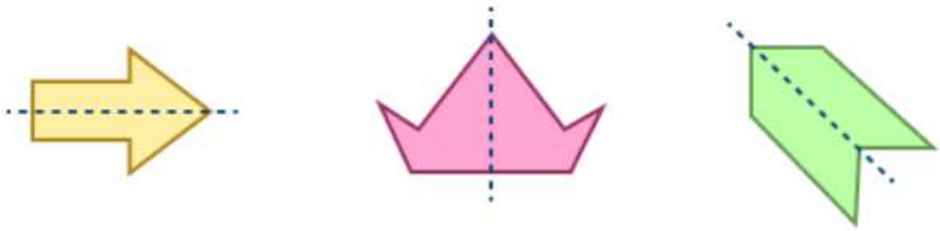
Introduction to Symmetry

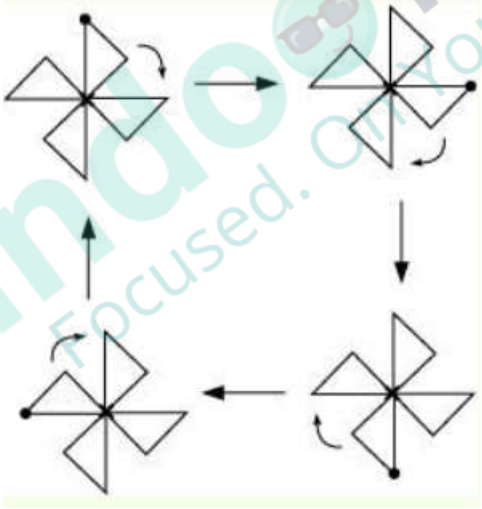
Line of symmetry



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

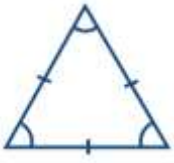


The given figure has its rotational symmetry as 4

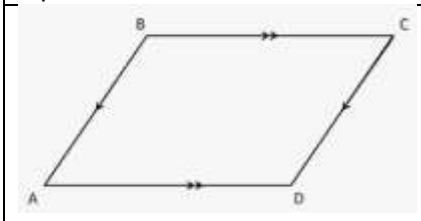
The order of rotational symmetry of a shape is the number of times it can be rotated around a full circle and still look the same.

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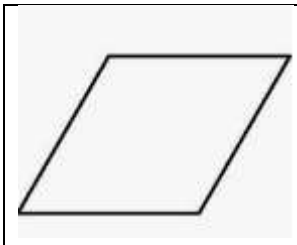
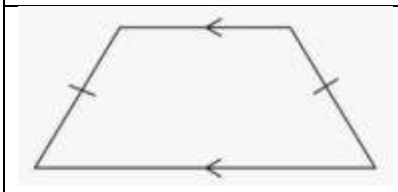
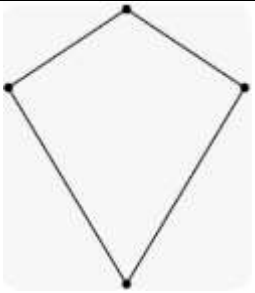
Symmetric Properties of Triangles

Triangle	Number of lines of symmetry	Order of rotational symmetry
 Scalene Triangle		
 Isosceles Triangle		
 Equilateral Triangle		

Symmetric Properties of Quadrilaterals

Quadrilateral	Number of lines of symmetry	Order of rotational symmetry
 Rectangle		
 Square		
 Parallelogram		

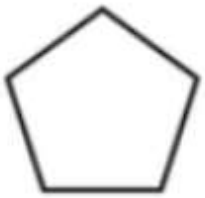
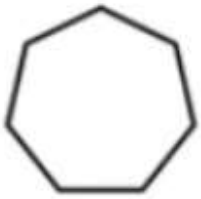
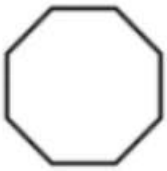
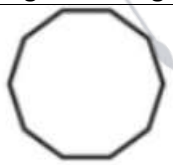
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 Rhombus		
 Isosceles Trapezium		
 Kite		

Symmetric Properties of Regular Polygons

Polygon	Number of lines of symmetry	Order of rotational symmetry
 Equilateral Triangle		
 Square		

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 Regular Pentagon		
 Regular Hexagon		
 Regular Heptagon		
 Regular Octagon		
 Regular nonagon		
 Regular Decagon		

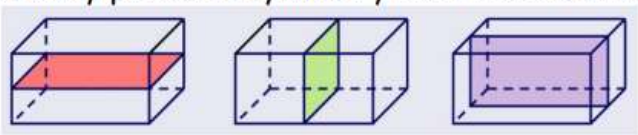
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Symmetry in 3 Dimension

Planes of Symmetry

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

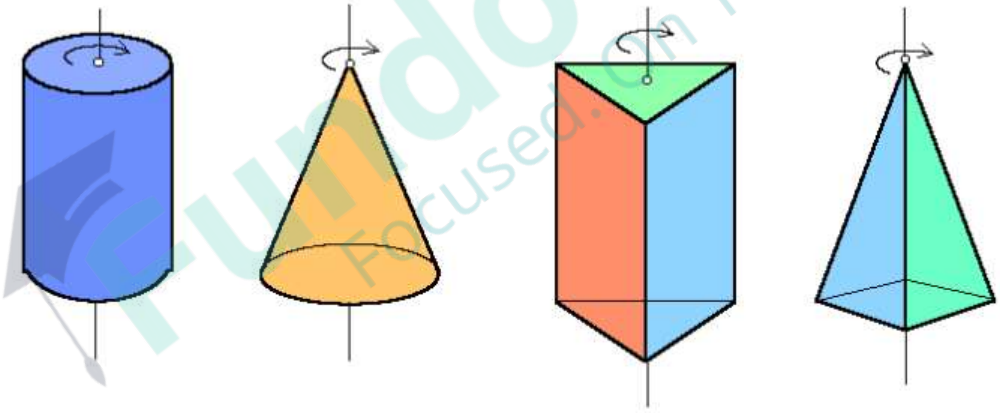
How many planes of symmetry does a cuboid have?

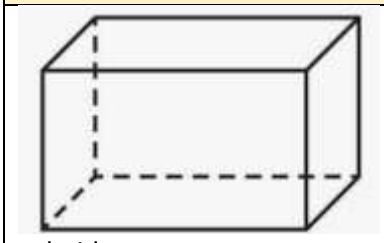
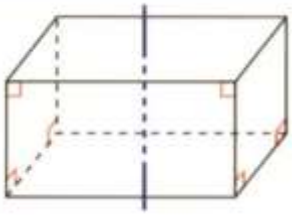


A cuboid has 3 planes of symmetry. You could cut the cuboid along the planes shown above and each half would look the same.

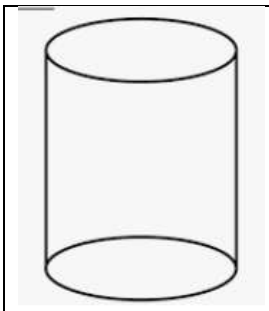
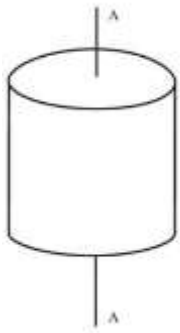
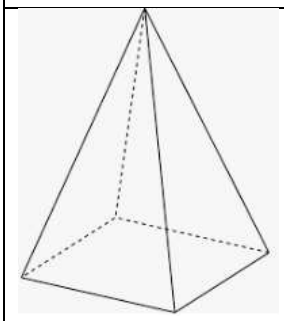
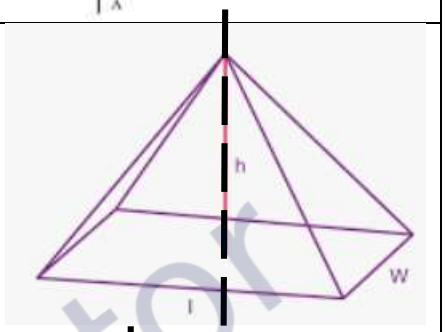
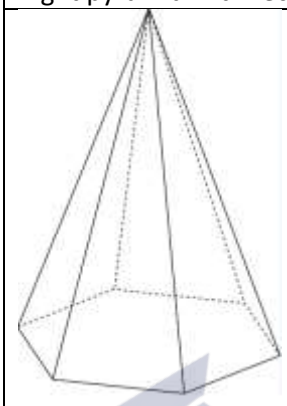
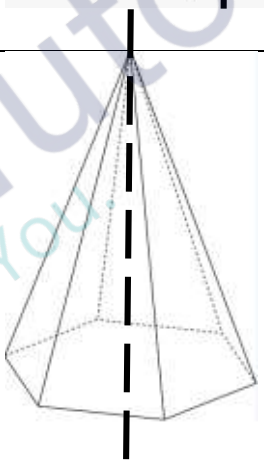
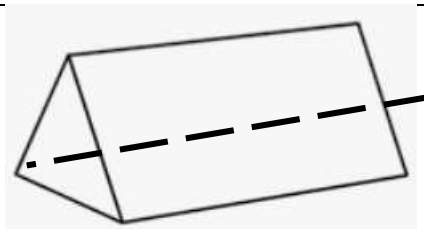
Order of Rotational Symmetry About Given Axis

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.**

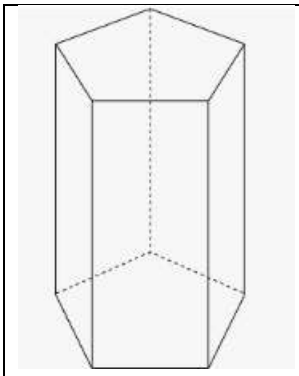
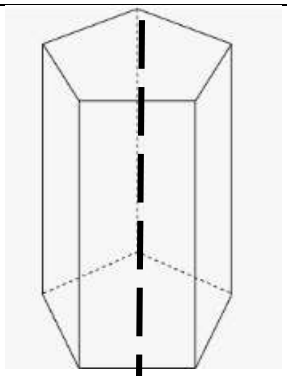
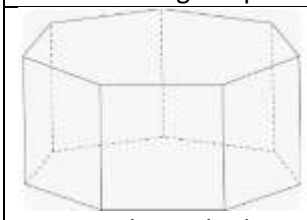
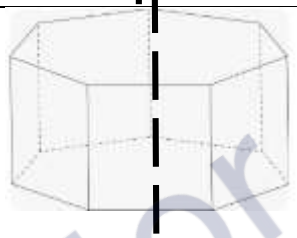


Solid	Number of Planes of Symmetry	Order of Rotational Symmetry about given axis
 cuboid		

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 Cylinder		
 Right pyramid with rectangular base		
 Right pyramid with hexagonal base		
 Prism with equilateral triangle as base		

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 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

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