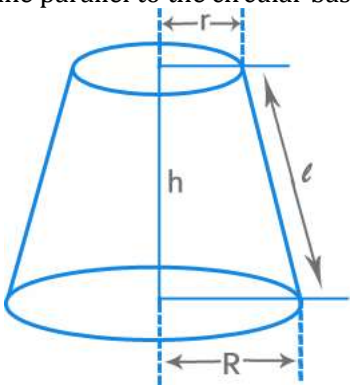
Solid Figures

	Volume	Total SurfaceArea	Lateral/CurvedSurfaceArea
Cube	$Side^3$	$6 \times Side^2$	$4 \times side^2$
Cuboid	$L \times B \times H$	$2(LB + LH + BH)$	**$2(LH + BH)$**
Cylinder	$\pi r^2 h$	$2\pi r(r + h)$	**$2\pi rh$**
Cone	$(1/3)\pi r^2 h$	$\pi r(r + L)$	πrl {where $L = \sqrt{r^2 + h^2}$ }
Sphere	$(4/3)\pi r^3$	$4\pi r^2$	$4\pi r^2$
Hemisphere	$(2/3)\pi r^3$	$3\pi r^2$	$2\pi r^2$

Concept: There are 4 body diagonals in a cube /cuboid of length ($\sqrt{3}$ × side) and $\sqrt{l^2 + b^2 + h^2}$ respectively.

Frustum / Truncated Cone

It can be obtained by cutting a cone with a plane parallel to the circular base.

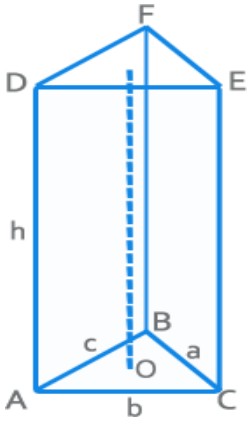


Volume = $\frac{1}{3}\pi h(R^2 + r^2 + Rr)$

Lateral Surface Area = $\pi(R+r)\,L$

Total Surface Area = $\pi(R+r)\,L + \pi(R^2+r^2)$

Prism



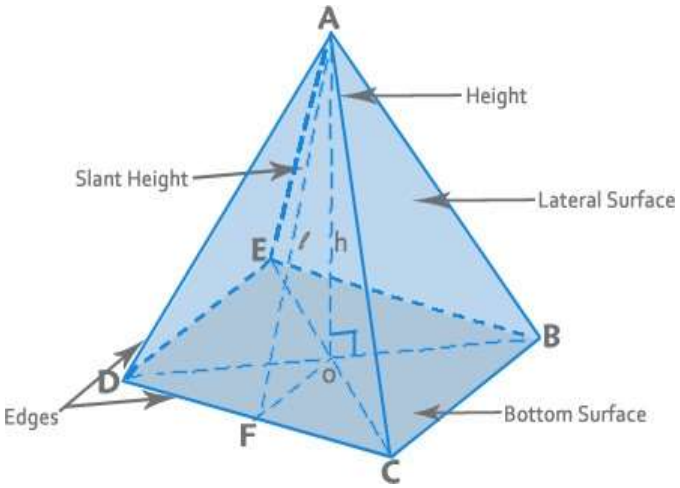
It is a solid with rectangular vertical faces and bases as congruent polygons (of n sides). It will have '2n' Vertices; 'n+2' Faces and '3n' Sides / Edges.

Lateral Surface Area = Perimeter × Height

Total Surface Area = Perimeter × Height + $2Area_{Base}$

Volume = $Area_{Base}$ x Height

Pyramid



It is a figure in which the outer surfaces are triangular and converge at a point known as the apex, which is aligned directly above the centre of the base.

Lateral Surface Area = **½ × Perimeter × Slant Height**

Total Surface Area = ½ × Perimeter × Slant Height + $\text{Area}_{\text{Base}}$
Volume = $\frac{1}{3}$ × $\text{Area}_{\text{Base}}$ × Height

Concept:If a sphere is inscribed in a cube of side a, the radius of the sphere will be a/2. If a sphere is circumscribed about a cube of side a, the radius of the sphere will be $\frac{\sqrt{3}a}{2}$.

Concept: If a largest possible sphere is inscribed in a cylinder of radius 'a' and height h, its radius r will be
⇒r = h/2 {If 2a>h}
⇒r = a {If 2a<h}

Concept:If a largest possible sphere is inscribed in a cone of radius r and slant height equal to 2r, then the radius of sphere = $\frac{r}{\sqrt{3}}$

Concept: If a cube is inscribed in a hemisphere of radius r, then the edge of the cube = $\sqrt{\frac{2}{3}}$ r