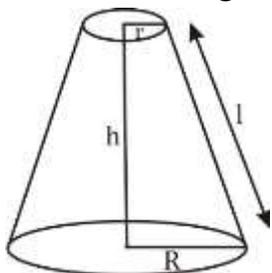
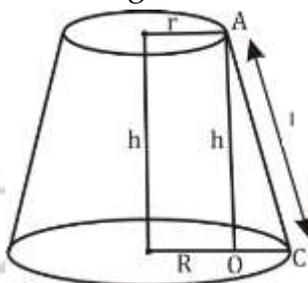


Mensuration Concepts and Important Formulas

(a) Frustum of a right Circular cone →



➤ Slant height



$AC = l, AB = h, BC = R - r$

Applying Pythagorean theorem in ΔABC

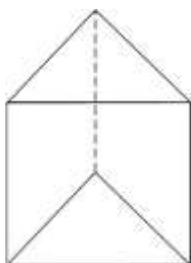
$L = \sqrt{h^2 + (R - r)^2}$

- volume of frustum = $\frac{1}{3}\pi(R^2 + r^2 + Rr)h$
- Curved surface area = $\pi(R + r)l$
- Total surface area, T.S.A = $\pi(R + r)l + \pi(R^2 + r^2)$

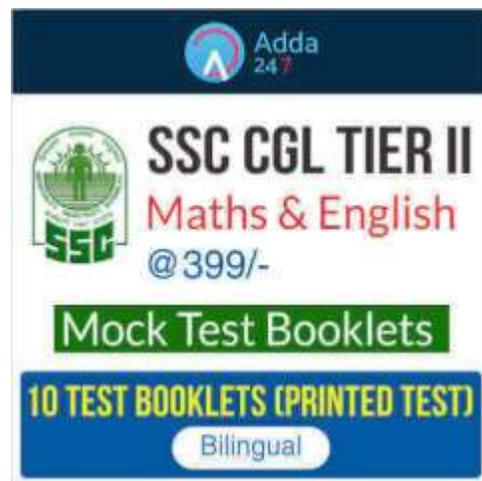
(b) Prism →

➤ A prism is a solid object with:

- (a) Identical Ends
- (b) Flat faces

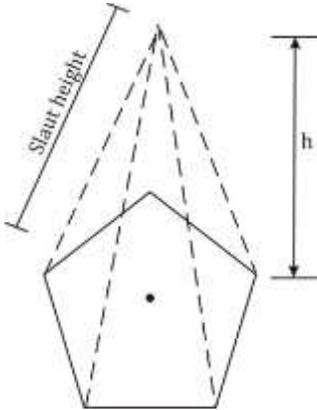


- Volume of Prism = Area of base × height
- Lateral surface area of prism = perimeter of base × height
- Total surface area of = Perimeter of base × height + 2 × area of base



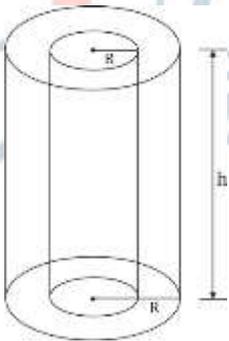
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(c) Pyramids:



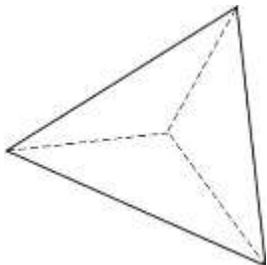
- Volume = $\frac{1}{3}(\text{area of base}) \times \text{height}$
- Curved surface area = $\frac{1}{2} \times (\text{perimeter of base}) \times \text{slant height}$
- Total surface area = curved surface area + area of the base
- Whenever in a question, If we want to find Slant height or height, then we will use inradius of the base not the Radius or side of the base.

(d) Hollow Cylinder →



- Volume = $\pi(R^2 - r^2)h$
- Curved Surface Area = $2\pi(R+r)h$
- Total surface area = $2\pi(R+r)h + 2\pi(R^2 - r^2)$

(e) Tetrahedron:



- Height = $\sqrt{\frac{2}{3}} a$
- Volume = $\frac{\sqrt{2}}{12} a^3$

- Lateral surface area = $\frac{3\sqrt{3}}{4} a^2$
- Total surface area = $\sqrt{3}a^2$
- Slant height = $\frac{\sqrt{3}}{2}a$
- Slant Edge = a

(f) Swimming Pool:

- Volume of swimming Pool = $\frac{1}{2}$ [Sum of depth of both sides] × length × Breadth



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