

CBSE Class 10 Mathematics
Revision Notes
CHAPTER 13
SURFACE AREAS AND VOLUMES

1. **Surface Area of a Combination of Solids**
 2. **Volume of a Combination of Solids**
 3. **Conversion of Solid from One Shape to Another**
 4. **Frustum of a Cone**
 5. **Miscellaneous Questions**
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CUBOID

1. Surface area of cuboid = $2(lb + bh + hl)$ sq. units
 2. Volume of Cuboid = lbh cubic units
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CUBE

1. Surface area of cube = $6s^2$ sq. units
 2. Volume of cube = s^3 cubic units
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CYLINDER

1. Curved surface area of cylinder of radius r and height $h = 2\pi rh$ square units.
 2. Total surface area of cylinder of radius r and height $h = 2\pi r(r + h)$ square units.
 3. Volume of cylinder of radius r and height $h = \pi r^2 h$ cubic units.
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CONE

1. Curved surface area of cone of radius r , height h and slant height $l = \pi rl$ square units
where $l = \sqrt{r^2 + h^2}$
 2. Total surface area of cone of radius r , slant height $l = \pi r(l + r)$ sq. units.
 3. Volume of cone of radius r , height $h = \frac{1}{3}\pi r^2 h$ cubic units.
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SPHERE

1. Total surface area of sphere of radius r units $= 4\pi r^2$ sq. units.
 2. Volume of sphere of radius r units $= \frac{4}{3}\pi r^3$ cubic units.
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HEMISPHERE

1. Curved surface area of hemisphere of radius r units $= 2\pi r^2$ sq. units.
 2. Total surface area of a solid hemisphere of radius r units $= 3\pi r^2$ sq. units.
 3. Volume of hemisphere of radius r units $= \frac{2}{3}\pi r^3$ cubic units.
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FRUSTUM

1. Curved surface area of frustum $= \pi l(r + R)$ sq. units. Where l slant height of frustum and radii of circular ends are r and R .
 2. Total surface area of frustum $= \pi l(r + R) + \pi(r^2 + R^2)$ sq. units.
 3. Volume of Frustum $= \frac{1}{3}\pi h(r^2 + R^2 + rR)$ cubic units.
 4. $l = \sqrt{h^2 + (R - r)^2}$ units
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