

Lateral Surface and Surface Area Formulas

Lateral Surface Area

- **Definition:** The **Lateral surface area** of a solid is the sum of the surface areas of all the faces of the solid excluding the base area.
- **Cube:** Lateral area = area of 4 sides of the cube = $4s^2$
- **Rectangular Prism:** Lateral area = area of 4 rectangular sides each having the same height = ph (perimeter of base x height)
- **Triangular Prism:** Lateral area = area of the 3 rectangular sides = ph (perimeter of base triangle x height)
- **Regular Pyramid:** Lateral area = area of 4 triangles = $\frac{1}{2}pl$ ($\frac{1}{2}$ x perimeter of rectangular base x slant height)
- **Cone:** Lateral area = area of region obtained after cutting along slant height and flattening cone = πrl
- **Cylinder:** Lateral area = area of region obtained after cutting along height of cylinder and flattening = $2\pi rh$
- **Sphere:** Lateral area = None

Surface Area:

- **Cube:** Surface area = $6s^2$
- **Rectangular Prism:** Surface area = $2lw + 2lh + 2wh$
- **Triangular Prism:** Surface area = L.A. (lateral area) + bh (base x height of triangular base)
- **Regular Pyramid:** Surface area = L.A. (lateral area) + lw (length x width of rectangular base)
- **Cone:** Surface area = L.A. (lateral area) + πr^2
- **Cylinder:** Surface area = L.A. (lateral area) + $2\pi r^2$
- **Sphere:** Surface area = $4\pi r^2$