

Surface Area of Solids

Chapter 11: Surface Areas and Volumes · Topic 1

Key Concept

Understanding the distinction between curved (or lateral) surface area and total surface area is important — curved surface area excludes flat top/bottom surfaces (useful for problems like painting only the side of a cylindrical tank), while total surface area includes all surfaces. These formulas have direct practical applications in manufacturing, packaging design, and construction, where the amount of material needed to cover a 3-D object's surface must be calculated precisely.

Quick Revision Notes

- Cube surface area: $6 \times \text{side}^2$. Cuboid: $2(lb+bh+hl)$.
- Cylinder curved surface area: $2\pi rh$. Total surface area adds $2\pi r^2$ for the two circular ends.
- Cone curved surface area: πrl (l = slant height).
- Curved/lateral surface area excludes flat ends; total surface area includes all surfaces.

Practice Questions

- 1 Find the total surface area of a cube with side 5cm.
- 2 Calculate the curved surface area of a cylinder with radius 7cm and height 10cm.
- 3 Explain the difference between curved surface area and total surface area for a cylinder.