Surface Area of Cube & Cuboid

Surface Area of a cube:

Surface Area of a cube is the total area of the outside surfaces of the cube and is given by $A = 6a^2$, where **a** is the edge.

A cube has 6 identical square faces and hence it is also called as a hexahedron.

Each face of a cube has 4 edges and totally there are 12 edges. It is measured in terms of square unit.

The lateral surface area of cube is = $4a^2$

Surface Area of Cuboid:

The surface area of a cuboid is the total space occupied by it. A cuboid is a sixfaced three-dimensional shape in which each face is in the shape of a rectangle.

A cuboid has two kinds of surface areas:

- Total Surface Area
- Lateral Surface Area

Total Surface Area of Cuboid = 2 (lw + wh + lh)

Lateral Surface Area of Cuboid = 2h (I + w)



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Let us understand with some examples:

Example 1: Find total surface area of cube whose edge is 6 cm.

Solution: Edge length of the cube (a) = 6 cm

The total surface area is equal to the sum of the areas of all the faces of the cube.

Thus, Total surface area of the cube = $6 \times (6)^2$

 $= 216 \text{ cm}^2$

.: The Total surface area of the cube is found to be 216 cm²

Example 2: The dimension of a cuboid are given as follows: Length = 4.8cm, Breadth = 3.4 cm, Height = 7.2 cm. Find its total surface area and lateral surface area.

Solution: The Total Surface Area is given as:

TSA = 2 (lb + bh + hl)

2((4.8 ×3.4) + (3.4×7.2) + (7.2×4.8))

= 2(16.32 + 24.48 + 34.56)

 $= 2(75.36) \text{ cm}^2$

Therefore, TSA of a cuboid is 150.72 cm

Also, the lateral surface area = 2 h (I + w)

= 2×7.2 (4.8 + 3.4)

= 14.4 (8.2) = 118.08

Therefore, LSA of a cuboid = 118.08 cm²