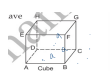
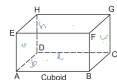


Q. occupies solid

Find the volume, the total surface area and the lateral surface area of a cuboid which is 15 m long, 12 m wide and 4.5 m high.



$$V = l \times b \times h$$

$$V = l \times b \times h = a \times a \times a = a^3$$

Total Surface area: $2(lb + bh + lh)$

Total Surface area: $2(a^2 + a^2 + a^2) = 6a^2$

Lateral Surface area: $2(lb + lh)$

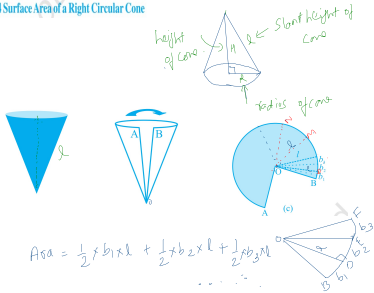
Lateral Surface area: $2(a^2 + a^2) = 4a^2$

Lateral Surface area: $2(lb + lh)$

Area of four walls: $[2(l+b) \times h]$

How many bricks will be required to construct a wall 135 m long, 6 m high and 22.5 cm thick? It is being given that each brick measures (27 cm \times 12.5 cm \times 9 cm)?

13.4 Surface Area of a Right Circular Cone



$$A_{\text{SA}} = \frac{1}{2} \times b_1 \times l + \frac{1}{2} \times b_2 \times l + \frac{1}{2} \times b_3 \times l + \dots$$

$$= \frac{1}{2} \times l (b_1 + b_2 + b_3 + \dots)$$

Curved Surface Area $A = \pi r l$



$$TSA = LSA \text{ of cone} + \text{Area of circle}$$

$$= \pi r l + \pi r^2$$

$$= \pi r (l + r)$$

$$TSA = \pi r (l + r)$$

1. Diameter of the base of a cone is 10.5 cm and its slant height is 10 cm. Find its curved surface area.

LSA = $\pi r l$

$$= \frac{22}{7} \times 10.5 \times 10$$

$$= 345 \text{ cm}^2$$



2. Find the total surface area of a cone if its slant height is 21 m and diameter of its base is 24 m.

$r = 12 \text{ m}$

$$TSA = \pi r (l + r) = 12 \times 3.14 \times 33 \text{ m}^2$$

3. Curved surface area of a cone is 308 cm² and its slant height is 14 cm. Find (i) radius of the base and (ii) total surface area of the cone.

(i) $LSA = 308 \text{ cm}^2$ $l = 14 \text{ cm}$ (ii) $\pi r (l + r)$

$$\pi r l = 308$$

$$\frac{22}{7} \times r \times 14 = 308$$

$$r = 7 \text{ cm}$$

4. A conical tent is 10 m high and the radius of its base is 24 m. Find

(i) slant height of the tent.

(ii) cost of the canvas required to make the tent, if the cost of 1 m² canvas is ₹ 70.

$\pi r (l + r)$

(i) $SA \triangle AOB$ by Pyth, 2

$$l^2 = (24)^2 + (10)^2$$

$$l^2 = 576 + 100$$

$$l^2 = 676$$

$$l = 26 \text{ m}$$



(ii) $LSA = \pi r l$

$$= \frac{22}{7} \times 24 \times 26$$

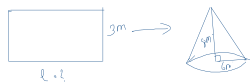
$$= 13728 \text{ m}^2$$

3 m² = ₹ 140

1 m² = ₹ 140

$$\frac{13728 \text{ m}^2}{3} = \frac{140 \times 13728}{3}$$

5. What length of tarpaulin 3 m wide will be required to make conical tent of height 8 m and base radius 6 m? Assume that the extra length of material that will be required for stitching margins and wastage in cutting is approximately 20 cm (Use $\pi = 3.14$).



Area of tarpaulin = Area of cone

$$l \times 3 = \pi r l$$

$$= \pi r (l + r)$$

$$= 3.14 \times 6 \times (8 + 6)$$

$$= 3.14 \times 6 \times 14$$

$$l = \frac{3.14 \times 6 \times 14}{3} = 62.8 \text{ m}$$

$$l = 62.8 \text{ m} + 0.2 \text{ m}$$

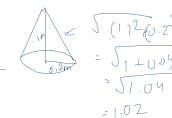
$$= 63 \text{ m}$$

8. A bus stop is barricaded from the remaining part of the road, by using 50 hollow cones made of recycled cardboard. Each cone has a base diameter of 40 cm and height 1 m. If the outer side of each of the cones is to be painted and the cost of painting is ₹ 12 per m², what will be the cost of painting all these cones? (Use $\pi = 3.14$ and take $\sqrt{61} = 7.81$)

$LSA = \pi r l$

$$= 3.14 \times 20 \times 1.02$$

$$= 6.3728 \text{ m}^2$$



Cost of painting = 50×6.3728