Class 10-Mathematics

Instructions for students: The notes provided must be copied to the Maths copy and then do the homework in the same copy.

Chapter 17

MENSURATION (Part - 2)

Right Circular Cone: A solid obtained by revolving a right angled triangular lamina about one of its sides (other than the hypotenuse) is called a **right circular cone.**

For a right circular cylinder with radius 'r' and height 'h',

1. **Slant height ' *l* ' =** $\sqrt{r^2 + h^2}$
2. **Curved(Lateral) Surface Area =** πrl
3. **Total Surface Area =** $\pi r\,(l + r)$
4. **Volume =** $\frac{1}{3}\,\pi r^2 h$

Exercise 17.2

4. Curved surface area = 308 cm^2

l = 14 cm

i) πrl = 308

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

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

= 7 cm

ii) Total surface area = π r (l + r)

= $\frac{22}{7} \times 7(14 + 7)$

= 462 cm^2

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10. Slant height l = 25m

Diameter = 14 m

Radius r = 7 m

Area of the curved surface of the conical tomb

$= \quad \pi r l$

$= \quad \frac{22}{7} \times 7 \times 25$

$= \quad 550\ m^2$

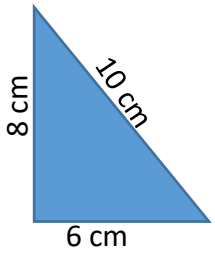
Cost of white washing 100 m^2 area = ₹210

" 1 m^2 " = $\frac{₹210}{100}$

" 550 m^2 " = $\frac{₹210}{100} \times 550$

= ₹ 1155

17.



When this right angled triangle is revolved about the side 8 cm

The radius of the cone formed r = 6 cm

The height 'h' = 8 cm

Slant height *'l'* = 10 cm

Volume = $\frac{1}{3}\ \pi r^2 h$

= $\frac{1}{3} \times 3.14 \times 6 \times 6 \times 8$

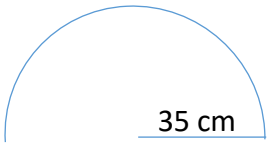
= 301. 44 cm^3

Curved surface area = $\pi r l$

= 3.14× 6×10

= 188.4 cm^2

19.



When this semi-circular sheet is folded to make a cone,

Circumference of the base = Circumference of the semicircle with radius 35 cm

$= \frac{22}{7} \times 35$

Circumference of the base = 110 cm^2

$2\ \pi\ r$ = 110

$2 \times \frac{22}{7} \times r$ =110

i) Radius of the cone r = $\frac{110 \times 7}{2 \times 22}$

= 17.5 cm.

ii) Lateral Surface Area = Area of the semi- circular lamina

$= \frac{1}{2} \times \frac{22}{7} \times 35 \times 35$

= 1925 cm^2

Or

Lateral Surface Area = π r *l* *(* slant height = radius of semi-circle)

$= \frac{22}{7} \times 17.5 \times 35$

= 1925 cm^2

Home Work: Complete **Exercise 17.2** in the Maths copy.

(Solve all the problems)