R. A hemisphere [illegible]

Exercise 13.3

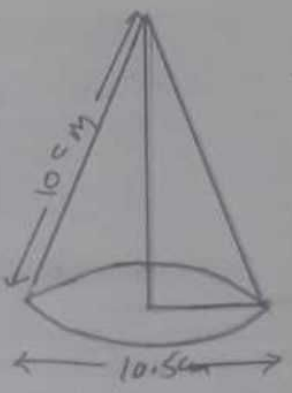
1 Sum. 13.3 Diameter of the base of a cone is 10.5cm and its slant height is 10cm. Find its Curved surface area.

Sol:

Diameter of Cone = 10.5 cm

Radius of Cone = $\frac{10.5}{2}$ cm

Slant height (l) = 10cm



Curved Surface area of Cone = πrl

$= \frac{22}{7} \times \frac{10.5}{2} \times 10$

$= \frac{\cancel{22}^{11}}{\cancel{7}_{1}} \times \frac{\cancel{105}^{15}}{\cancel{2} \times \cancel{10}} \times \cancel{10}$

$= 11 \times 15 = 165 \text{ cm}^2$ Ans

Q. A hemisphere ...

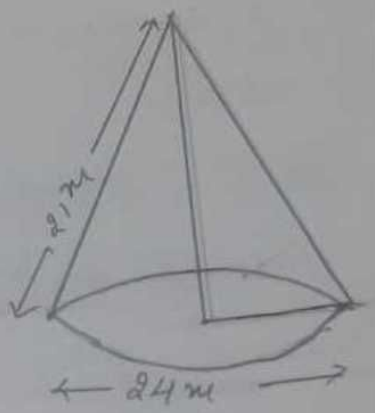
2 Sum 13.3 : Find the total surface area of a cone. If its slant height is 21 m and diameter of its base is 24 m.

Sol :-

Diameter of Cone = 24 m

Radius of Cone = $\frac{24}{2} = 12$ m

Slant Height of Cone = 21 m



Total surface area of Cone = $\pi rl + \pi r^2$

$= \pi r(l + r)$

$= \frac{22}{7} \times 12 (21 + 12)$

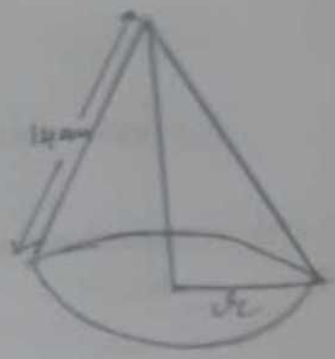
$= \frac{22}{7} \times 12 \times 33$

$= \frac{264 \times 33}{7}$

$= \frac{8712}{7}$ 1244.57

$= 1244.57 \text{ m}^2$ Ans.

3 Exam / 13-3 : 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.



Sol :- Slant height = 14cm

Curved Surface area = 308 cm²

$$\pi rl = 308 \text{ cm}^2$$

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

$$22 \times r \times 2 = 308$$

$$r = \frac{308}{22 \times 2} \quad 154 \quad 7$$

$$2$$

$r = 7$ cm Ans.

Total Surface area of Cone = $\pi rl + \pi r^2$

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

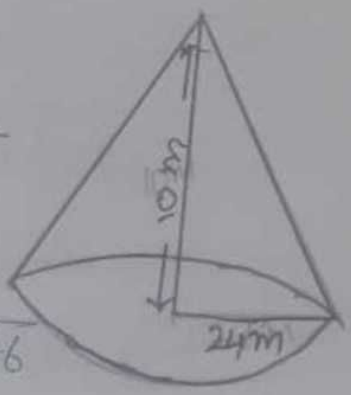
$$= \frac{22}{7} \times 7 (14 + 7)$$

$$= 22 \times 21$$

$$= 462 \text{ cm}^2 \text{ Ans}$$

4 Sum :- A Conical tent is 10m high and radius of its base is 24m. Find
(i) Slant height of the tent.
(ii) Cost of the Canvas required to make the tent, if the cost of $1m^2$ Canvas is ₹70

Sol : Radius of Cone = 24m
Height of Cone = 10m
Slant height of Cone = $\sqrt{r^2+h^2}$

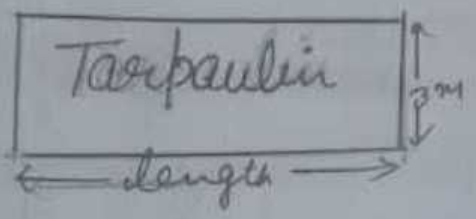


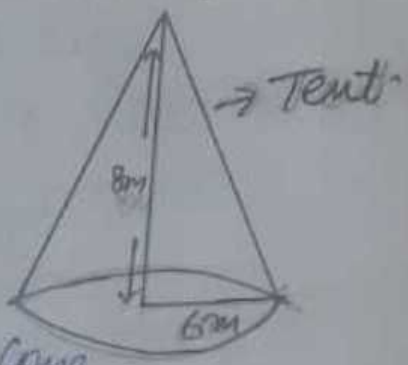
$= \sqrt{(24)^2+(10)^2}$
$= \sqrt{576+100} = \sqrt{676}$
$l = \sqrt{26\times26}$
$= 26\ m$

(ii) Curved Surface area of Cone = πrl
$= \frac{22}{7}\times24\times26\ m^2$

Cost of $1m^2$ Canvas to make tent = Rs 70
Cost of $\frac{22}{7}\times24\times26\ m^2$ Canvas to make tent = Rs $\frac{22}{7}\times24\times26\times10$
= Rs $22\times24\times26\times10$
= Rs 137280 Ans

5 Exam
13.3 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

$l \times b = \pi r l$

$l \times 3 = 3.14 \times 6 \times l$

$l = \sqrt{r^2 + h^2}$

$= \sqrt{(6)^2 + (8)^2}$

$= \sqrt{36 + 64} = \sqrt{100} = \sqrt{10 \times 10} = 10$ m

$l_1 \times 3 = 3.14 \times 6 \times 10$

$l_1 = \frac{314 \times 6 \times 10}{100 \times 3}$

$l_1 = 62.8$ m

wastage = 20 cm

$= \frac{20}{100}$ m $= 0.2$ m

Total length = $(62.8 + 0.2)$ m

= 63 m. Ans

Problem → A dice stab is barricaded known 11.0 29

Example 13.3 — The slant height and base diameter of a conical tomb are 25 m and 14 m respectively. Find the cost of white washing its curved surface at the rate of Rs 210 per m^2

Sol :-

Slant height = 25 m

Diameter = 14 m

Radius = $\frac{14}{2}$ = 7 m

Curved surface area of cone = πrl

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

$= 550\ m^2$

Cost of white washing of $100\ m^2$ = Rs 210

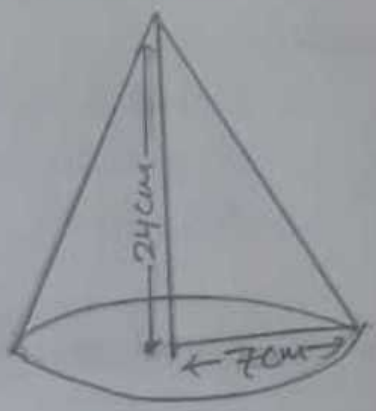
Cost of white washing of $1\ m^2$ = Rs $\frac{210}{100}$

Cost of white washing of $550\ m^2$ = Rs $\frac{210}{100} \times 550$

= Rs 1155. Ans

6. A hemisphere ...

7. Sum: A Joker's Cap is in the form of a right Circular Cone of base radius 7 cm and height 24 cm. Find the area of the sheet required to make 10 such Caps.



Sol:- Radius of Cone = 7 cm
Height of Cone = 24 cm

Slant height $= \sqrt{r^2 + h^2}$

$= \sqrt{(7)^2 + (24)^2}$

$= \sqrt{49 + 576}$

$l = \sqrt{625} = \sqrt{25 \times 25} = 25$ cm

Curved Surface area of Cone $= \pi r l$

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

$= 550 \text{ cm}^2$

Curved Surface area of 10 Caps $= 550 \times 10$

$= 5500 \text{ cm}^2$ Ans

Sum → 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 Rs 12 per m^2, what will be the cost of painting all these cones

Sol:-

Diameter of Cone = 40 cm

radius of Cone = $\frac{40}{2}$ cm

= 20 cm

= $\frac{20}{100}$ m

Height = 1 m

Slant height : $\sqrt{r^2 + h^2}$

(ii)

$= \sqrt{\left(\frac{2}{10}\right)^2 + (1)^2}$

$= \sqrt{\frac{4}{100} + \frac{1}{1}}$

$= \sqrt{0.04 + 1}$

$l = \sqrt{1.04} = 1.02$

Curved surface area of 1 Cone = πrl

$= 3.14 \times 0.2 \times 1.02\ m^2$

$= 0.64056\ m^2$

Curved surface area of 50 Cones = $50 \times 0.64056\ m^2$

$= 32.028\ m^2$

Cost of painting the Cones of $1\ m^2$ = Rs 12

Cost of painting the Cones of $32.028\ m^2$ = Rs 12×32.02

= Rs 384.14