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CLASS – 9

MATHEMATICS

Chapter – 11

Surface Areas and Volumes

Part – 4

Exercise 11.1 (Question 1 - 4)

Vikas Saini

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

A.T.Q

Diameter of base of cone = 10.5 cm = $\frac{105}{10} = \frac{21}{2}$ cm

So, Radius of base of cone = $\frac{D}{2}$

$= \frac{21}{2} \times \frac{1}{2} = \frac{21}{4}$ cm

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Slant height = 10cm

We know that

Curved Surface area of cone = $\pi \times r \times l$

So

C.S.A of cone = $\frac{22}{7} \times \frac{21}{4} \times 10$

$= \frac{11 \quad 3}{\cancel{22} \times \cancel{21} \times \cancel{10}^{5}}{\cancel{7} \times \cancel{4}_{2}}$

$= \frac{11 \times 3 \times 5}{1 \times 1}$



$16.5 \text{ cm} = \frac{21}{2} \text{ cm}$

$\pi = \frac{22}{7} = 3.14$

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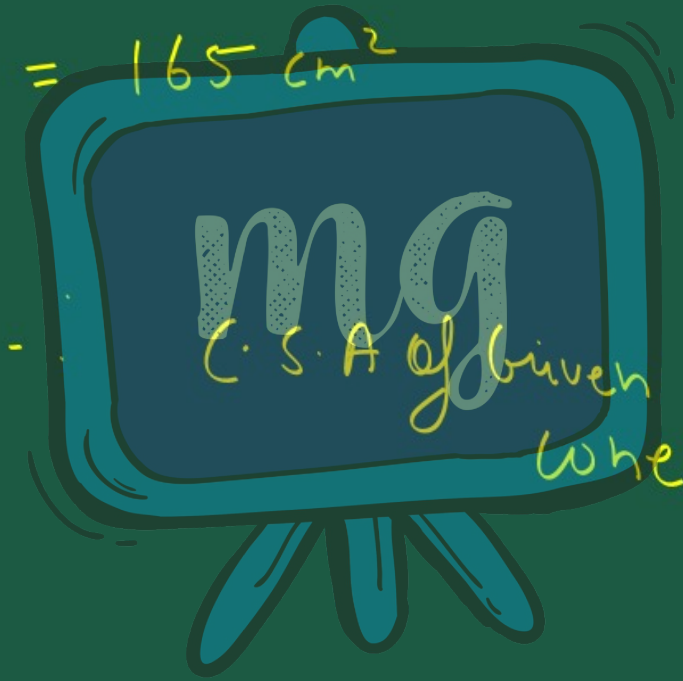
$= 11 \times 3 \times 5$

$= 165\ cm^2$



C.S.A of given cone $= 165\ cm^2$

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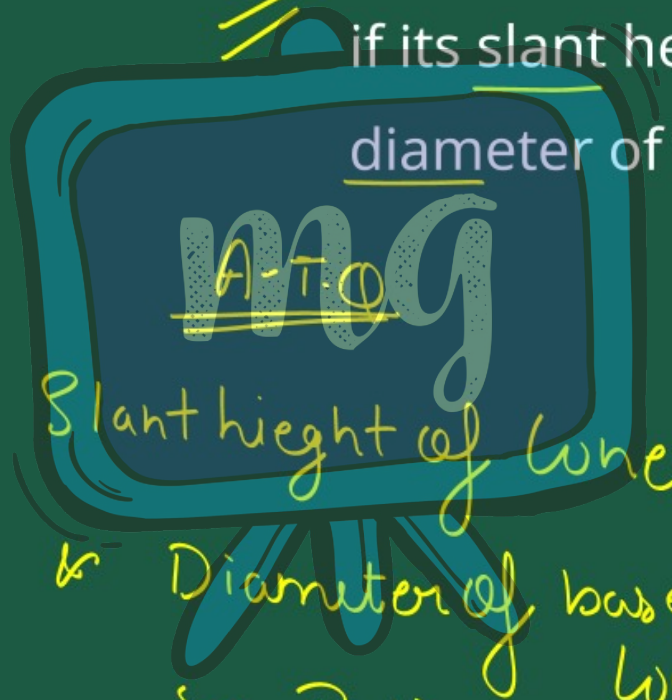
2. Find the total surface area of a cone, if its slant height is 21 m and diameter of its base is 24 m.



A-T-Q

Slant height of cone = 21m

& Diameter of base of cone = 24m

So Radius = $\frac{D}{2} = \frac{24}{2} = 12m$.

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Now we know that

Total Surface Area of Cone $= \pi r(l+r)$

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

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

$= \frac{8712}{7} m^2$

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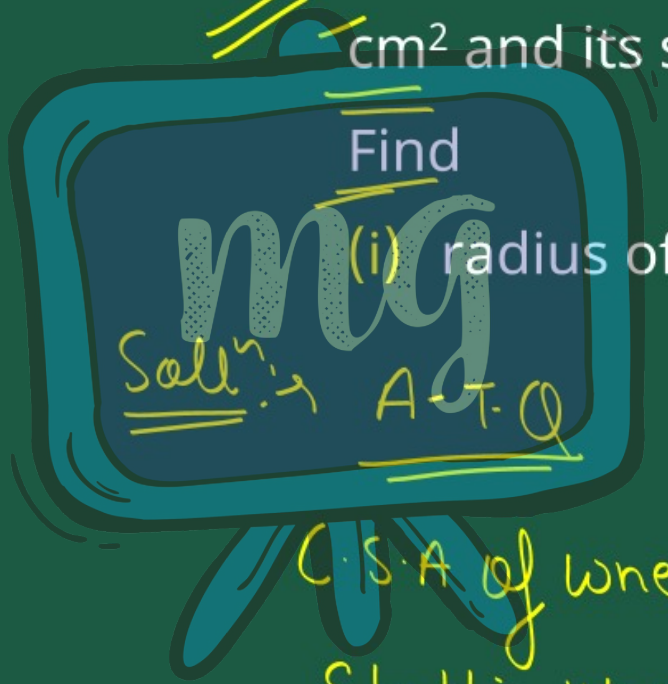
3. Curved surface area of a cone is 308 cm^2 and its slant height is 14 cm.

Find

(i) radius of the base and



Soln :→ A-q-Q

C.S.A of cone = 308 cm^2

Slant height of cone = 14 cm

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Now

we know that

C.S.A of cone $= \pi \times r \times l = 308$

$$\frac{\cancel{22}^{2}}{\cancel{7}} \times r \times \cancel{14}^{2} = 308$$

$$44r = 308$$

$$r = \frac{\cancel{308}^{\cancel{154}\,7}}{\cancel{44}_{\cancel{22}}}$$

$$\boxed{r = 7\,cm}$$

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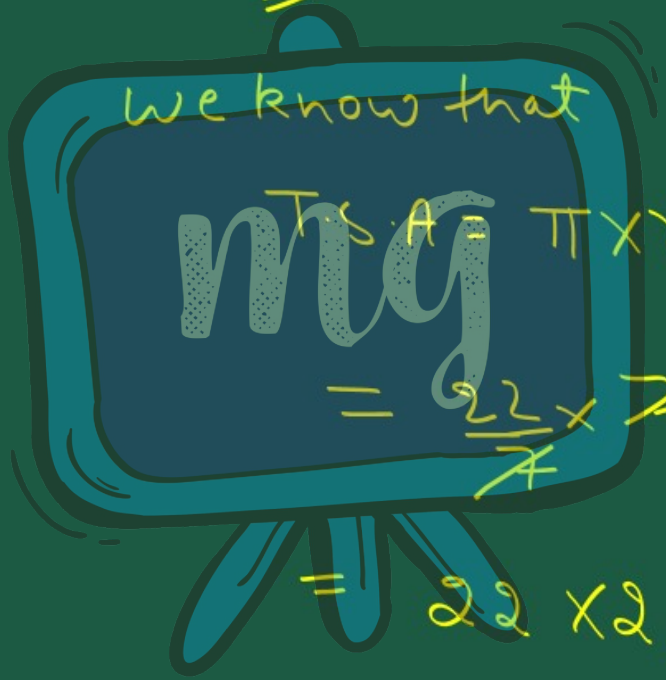
(ii) total surface area of the cone.



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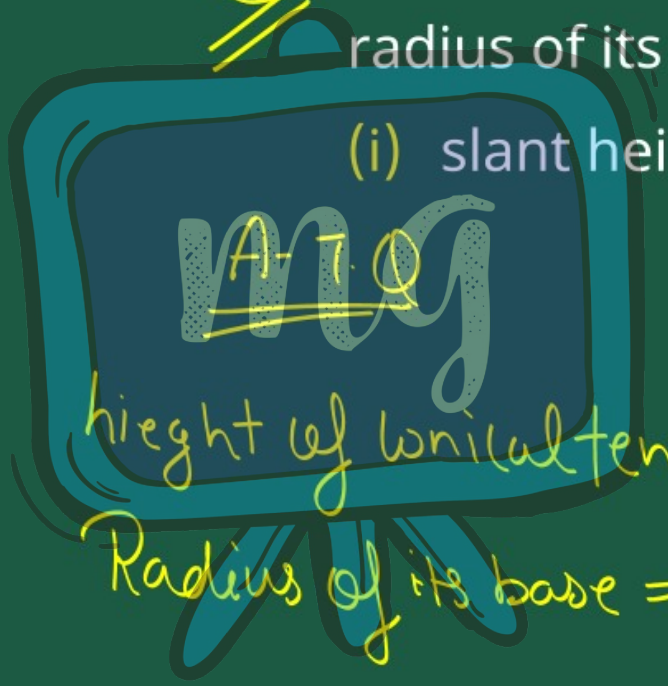
4. A conical tent is 10 m high and the radius of its base is 24 m. Find

(i) slant height of the tent.



A-T-Q

height of conical tent = 10m

Radius of its base = 24m.

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now we know that

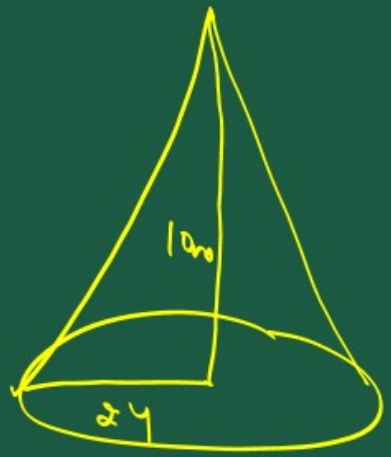
$$l = \sqrt{r^2 + h^2}$$

$$l = \sqrt{(24)^2 + (10)^2}$$

$$l = \sqrt{576 + 100}$$

$$l = \sqrt{676}$$

$$l = 26\,m$$



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(ii) cost of the canvas required to make the tent, if the cost of 1 m^2 canvas is ₹ 70.



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C.S.A of Cone $= \pi \times r \times l$

C.S.A of Cone $= \frac{22}{7} \times 24 \times 26 \ m^2$

Now

Since The cost of canvas for $1 m^2 = 70$ Rs

So, The cost of canvas $= \frac{22 \times 24 \times 26}{7} \times 70^{10}$

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Cost of canvas = 22 × 24 × 26 × 10

= 528 × 26 × 10

= 1,37,280 Rs

