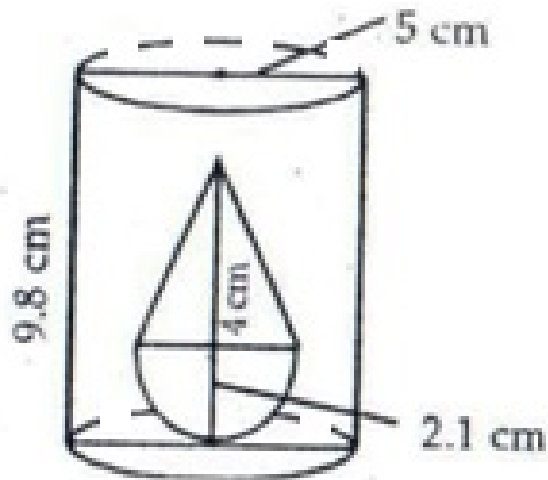




### Exercise 19A

Question 14:



Radius of cylinder  $r_1 = 5$  cm

And height of cylinder  $h_1 = 9.8$  cm

Radius of cone  $r = 2.1$  cm

And height of cone  $h_2 = 4$  cm

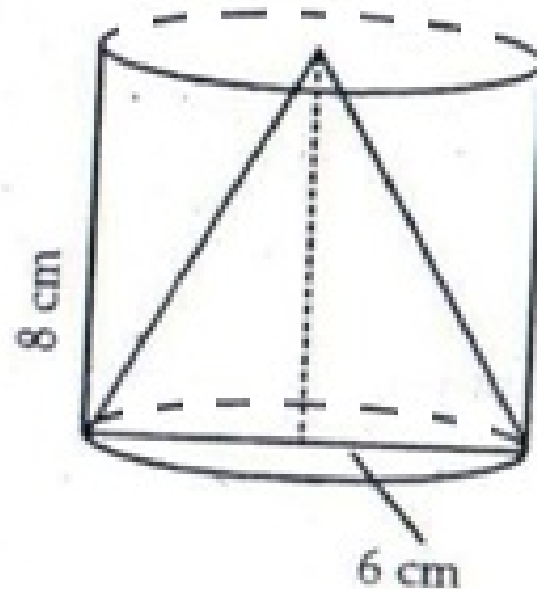
Volume of water left in tub = (volume of cylindrical tub - volume of solid)

$$\begin{aligned}
 &= \left( \pi r_1^2 h_1 - \frac{2}{3} \pi r^3 - \frac{1}{3} \pi r^2 h_2 \right) \\
 &= \left( \frac{22}{7} \times 5 \times 5 \times 9.8 - \frac{2}{3} \times \frac{22}{7} \times 2.1 \times 2.1 \times 2.1 - \frac{1}{3} \times \frac{22}{7} \times 2.1 \times 2.1 \times 4 \right) \\
 &= [(770 - 19.404) - 18.48] \text{ cm}^3 \\
 &= 732.116 \text{ cm}^3
 \end{aligned}$$

Question 15:

(i) Radius of cylinder = 6 cm

Height of cylinder = 8 cm



Volume of cylinder

$$\Rightarrow \pi r^2 \times 10800 = 972\pi$$

$$r^2 = \frac{972\pi}{10800\pi} = 0.09 \text{ cm}^2$$

$$r = \sqrt{0.09} \text{ cm} = 0.3$$

Volume of cone removed

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

$$= \frac{1}{3} \times \pi \times 6 \times 6 \times 8 \text{ cm}^3$$

$$= 96 \pi \text{ cm}^3$$

$$(ii) \text{ Surface area of cylinder} = 2\pi r h = 2\pi \times 6 \times 8 \text{ cm}^2 = 96 \pi \text{ cm}^2$$

$$\begin{aligned} \text{Slant height of cone} &= \sqrt{6^2 + 8^2} = \sqrt{36 + 64} \text{ cm} \\ &= \sqrt{100} \text{ cm} = 10 \text{ cm} \end{aligned}$$

$$\text{Curved surface area of cone} = \pi r l = \pi \times 6 \times 10 = 60 \pi$$

$$\text{Area of base of cylinder} = \pi r^2 = \pi \times 6 \times 6 = 36 \pi$$

Total surface area of remaining solid

$$\begin{aligned} &= (96\pi + 60\pi + 36\pi) \text{ cm}^2 \\ &= 192 \pi \text{ cm}^2 = 602.88 \text{ cm}^2 \end{aligned}$$

\*\*\*\*\* END \*\*\*\*\*