

Exercise VSAQs

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Question 1: The height of a cone is 15 cm. If its volume is $500\pi \text{ cm}^3$, then find the radius of its base.

Solution:

Height of a cone = 15 cm

Volume of cone = $500\pi \text{ cm}^3$

We know, Volume of cone = $\frac{1}{3}\pi r^2 h$

So, $500\pi = \frac{1}{3}\pi r^2 \times 15$

$$r^2 = 100$$

$$\text{or } r = 10$$

Radius of base is 10 cm.

Question 2: If the volume of a right circular cone of height 9 cm is $48\pi \text{ cm}^3$, find the diameter of its base.

Solution:

Height of a cone = 9 cm

Volume of cone = $48\pi \text{ cm}^3$

We know, Volume of cone = $\frac{1}{3}\pi r^2 h$

So, $48\pi = \frac{1}{3}\pi r^2 \times 9$

$$r^2 = 16$$

$$\text{or } r = 4$$

Radius of base $r = 4$ cm

Therefore, Diameter = 2 Radius = $2 \times 4 \text{ cm} = 8 \text{ cm}$.

Question 3: If the height and slant height of a cone are 21 cm and 28 cm respectively. Find its volume.

Solution:

Height of cone (h) = 21 cm

Slant height of cone (l) = 28 cm

Find radius of cone:

We know, $l^2 = r^2 + h^2$

$$28^2 = r^2 + 21^2$$

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

Now,

We know, Volume of cone = $\frac{1}{3} \pi r^2 h$

$$= \frac{1}{3} \times \pi \times (7\sqrt{7})^2 \times 21$$

$$= 2401 \pi$$

Therefore, Volume of cone is $2401 \pi \text{ cm}^3$.

Question 4: The height of a conical vessel is 3.5 cm. If its capacity is 3.3 litres of milk. Find the diameter of its base.

Solution:

Height of a conical vessel = 3.5 cm and

Capacity of conical vessel is 3.3 litres or 3300 cm^3

Now,

We know, Volume of cone = $\frac{1}{3} \pi r^2 h$

$$3300 = \frac{1}{3} \times \frac{22}{7} \times r^2 \times 3.5$$

$$\text{or } r^2 = 900$$

$$\text{or } r = 30$$

So, radius of cone is 30 cm

Hence, diameter of its base = 2 Radius = $2 \times 30 \text{ cm} = 60 \text{ cm}$