IGCSE Maths – Cone – Volume

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➲Solution in the next page(s)

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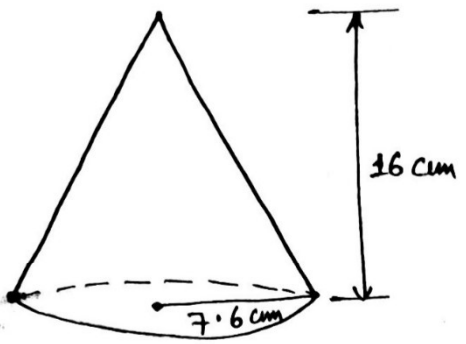
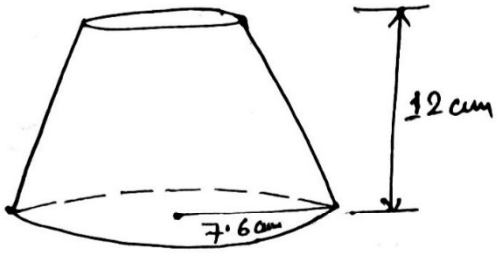


(NOT TO SCALE)



Solution: Basic approach:

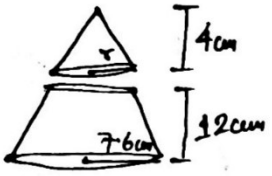
Total volume = Volume of small cone (from the cut made) + Volume of remaining part. (frustum)

Total Volume of cone $V = \frac{1}{3}\pi r^2 h$

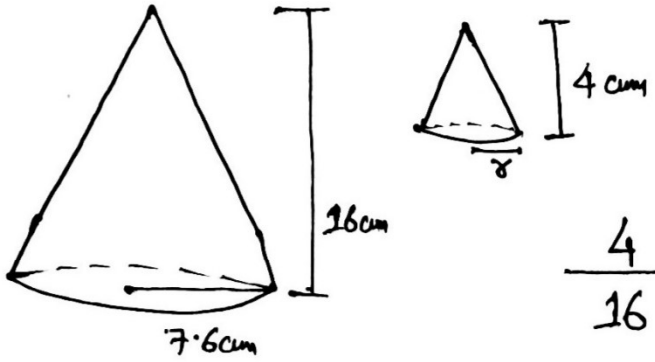
$$V = \frac{1}{3} \times \frac{22}{7} \times (7{\cdot}6)^2 \times 16$$

$$= 968{\cdot}17 \text{ cm}^3 \quad (= 968{\cdot}167 \text{ cm}^3)$$

* Now, in order to find the volume of small cone (from cut made) we first need to have the radius of this cone.



from similarity concept (in the cones)



$$\frac{4}{16} = \frac{r}{7.6}$$

So, $r = \frac{4 \times 7.6}{16} = 1.9 \text{ cm}$

Volume of small cone (cut portion)

$$V' = \frac{1}{3} \times \frac{22}{7} \times (1.9)^2 \times 4$$

$$= 15.127 \text{ cm}^3$$

Hence, Volume of remaining part (frustum)

Vol. of frustum $= 968.167 - 15.127$

$= 953.04 \text{ cm}^3$

$\simeq 953 \text{ cm}^3$

——— Answer.