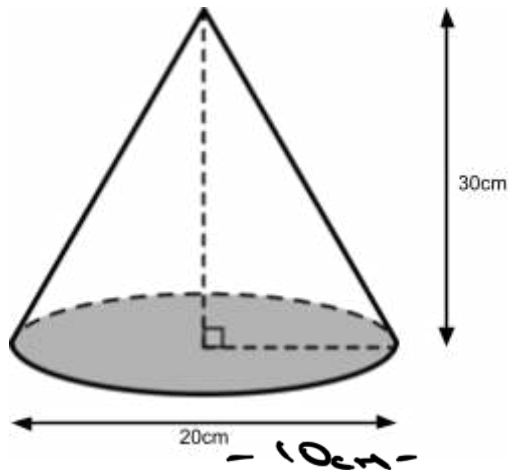


QT Volume of a Cone



1. The diagram shows a cone.

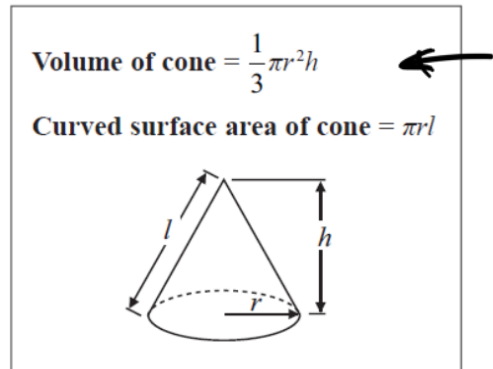


The base of the cone is 20cm.

The height of the cone is 30cm.

Work out the volume of the cone.

Give your answer correct to 3 significant figures.

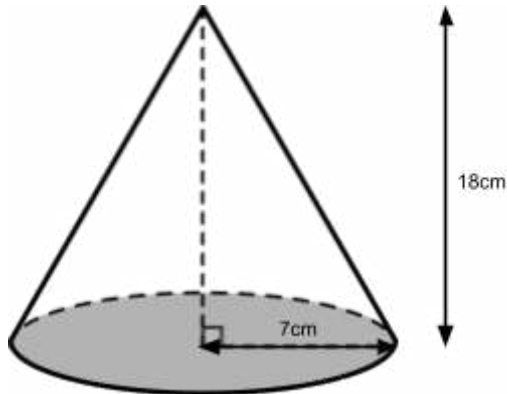


$$\begin{aligned} \text{Volume} &= \frac{1}{3} \pi r^2 h \\ &= \frac{1}{3} \pi (10)^2 (30) \\ &= 1000 \pi \\ &= 3141.5926 \text{ cm}^3 \\ &= \underline{\underline{3140 \text{ cm}^3}} \end{aligned}$$

QT Volume of a Cone



2. The diagram shows a cone.



The radius of the cone is 7cm.
The height of the cone is 18cm.
Work out the volume of the cone.
Give your answer in terms of π .

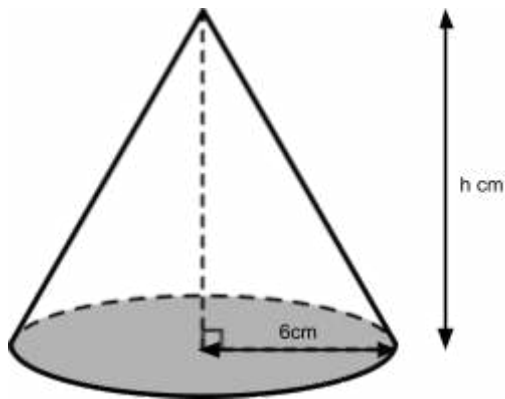
Volume of cone = $\frac{1}{3}\pi r^2 h$
Curved surface area of cone = $\pi r l$

$$\begin{aligned} \text{Volume} &= \frac{1}{3} \pi r^2 h \\ &= \frac{1}{3} \pi (7)^2 18 \\ &= \underline{\underline{294\pi \text{ cm}^3}} \end{aligned}$$

QT Volume of a Cone



3. The diagram shows a cone with a volume of 180cm^3 .



The radius of the cone is 6cm.
Work out the height of the cone.
Give your answer correct to 1 decimal place.

$$\text{Height} = \underline{\underline{4.8 \text{ cm}}}$$

Volume of cone = $\frac{1}{3}\pi r^2 h$
Curved surface area of cone = $\pi r l$

The diagram shows a cone with a dashed line for the height 'h' from the apex to the center of the base. The radius 'r' is shown as a horizontal line from the center to the edge. The slant height 'l' is shown as a line from the apex to the edge.

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

$$180 = \frac{1}{3} \pi (6)^2 h$$

$$180 = 12\pi h$$

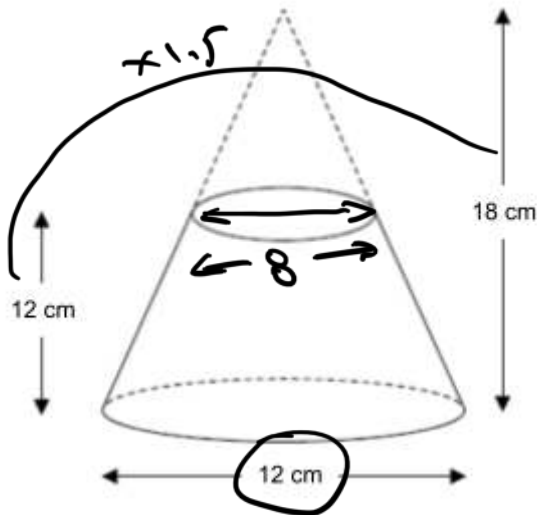
$$\frac{180}{12\pi} = h$$

$$4.2746 = h$$

QT Volume of a Cone



4. A frustum is made by removing a small cone from a large cone, as shown in the diagram.



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

Curved surface area of cone = $\pi r l$

Work out the volume of the frustum.
Give your answer correct to 3 significant figures.



$$\begin{aligned} \text{Vol} &= \frac{1}{3}\pi r^2 h \\ &= \frac{1}{3}\pi (4)^2 6 \\ &= 32\pi \end{aligned}$$

$$\begin{aligned} \text{Vol of large cone} &= \frac{1}{3}\pi (6)^2 18 \\ &= 216\pi \end{aligned}$$

$$\begin{aligned} \text{Vol. of frustum} &= 216\pi - 32\pi \\ &= 184\pi \\ &= 578.0530 \text{ cm}^3 \\ &= \underline{\underline{578 \text{ cm}^3}} \end{aligned}$$