

23rd December

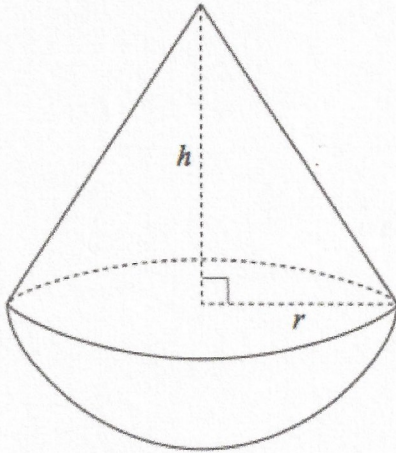


Corbettmaths

Factorise

$$2x^2 + x - 1$$

$$(2x-1)(x+1)$$



The diagram shows a solid made up of a cone and a hemisphere.

The radius of the cone is 5cm.  
The height of the cone is 8cm.

Calculate the volume of the solid.

$$\begin{aligned} \text{cone } V &= \frac{1}{3} \times \pi \times 5^2 \times 8 \\ &= 209.4395102 \end{aligned}$$

$$\begin{aligned} \text{hemisphere } V &= \frac{2}{3} \times \pi \times 5^3 \\ &= 261.7993878 \end{aligned}$$

$$471.24 \text{ cm}^3$$

The line L passes through the points  $(-4, 0)$  and  $(2, -2)$

The line M passes through the points  $(3, 8)$  and  $(2, 2)$

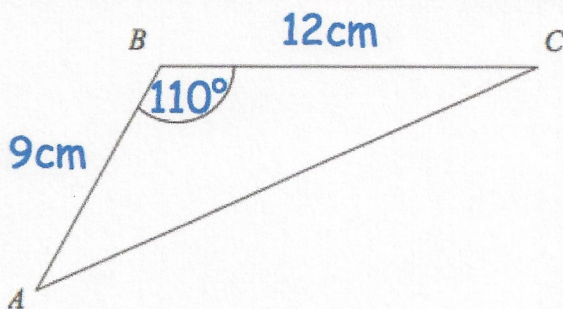
Are the lines L and M perpendicular?  
Show your workings

No

$$\text{gradient of L} = \frac{-2}{6} = -\frac{1}{3}$$

$$\text{gradient of M} = \frac{6}{1} = 6$$

$$-\frac{1}{3} \times 6 \neq -1$$



Find the area of ABC.

$$\frac{1}{2} \times 9 \times 12 \times \sin 110$$

$$= 50.74 \text{ cm}^2$$