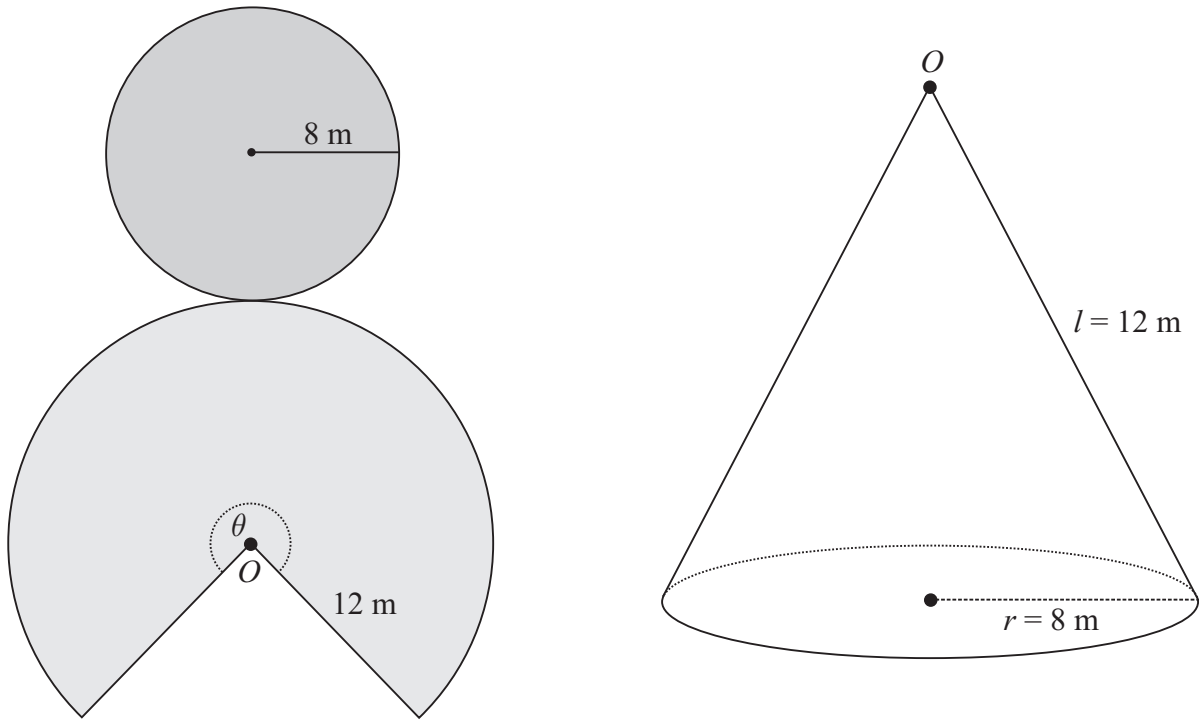


SAMPLE PAPER 4: PAPER 2

QUESTION 7 (50 MARKS)

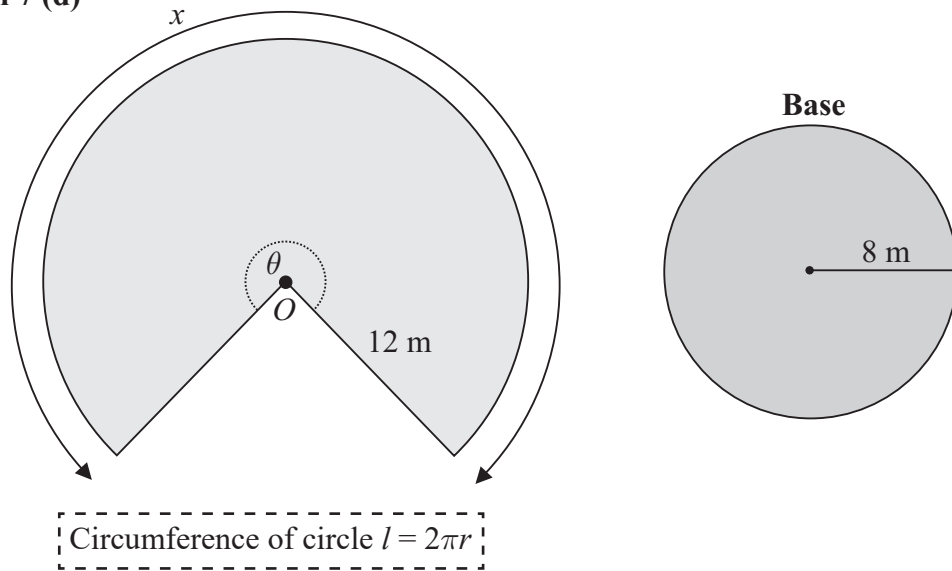
Question 7 (a)



Question 7 (b&c)

Radius of base of cone $r = 8$ m
 Slant height of the cone $l = 12$ m

Question 7 (d)



The length x is equal to the circumference of the circular base.

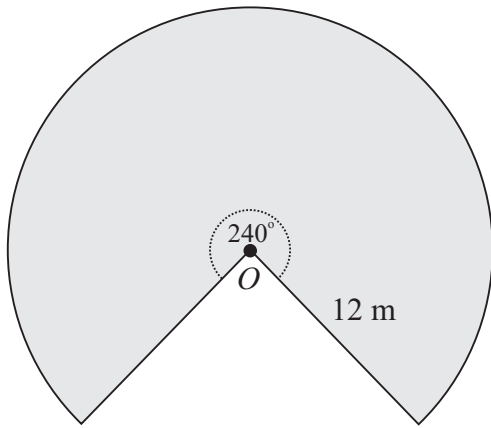
Length of circumference of base $= 2\pi(8) = 16\pi$ m $= x$

Length of circumference of big circle $= 2\pi(12) = 24\pi$ m

$$\frac{\text{Circumference of base}}{\text{Circumference of big circle}} = \frac{16\pi}{24\pi} = \frac{2}{3}$$

$$\theta = \frac{2}{3} \times 360^\circ = 240^\circ$$

Question 7 (e)



$$\text{Area of circle } A = \pi r^2$$

Curved surface area

$$\begin{aligned} &= \frac{240^\circ}{360^\circ} \times \pi(12)^2 \\ &= 96\pi = 301.6\text{ m}^2 \end{aligned}$$

Question 7 (f)

Area of base

$$\begin{aligned} &= \pi(8)^2 \\ &= 64\pi = 201.1\text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{Total surface area} &= \text{Curved surface area} + \text{Area of base} \\ &= 301.6 + 201.1 = 502.7\text{ m}^2 \end{aligned}$$

Question 7 (g)

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

$$r^2 + h^2 = l^2$$

$$h^2 = l^2 - r^2$$

$$h = \sqrt{l^2 - r^2} = \sqrt{12^2 - 8^2} = 4\sqrt{5}\text{ m}$$

$$V = \frac{1}{3}\pi r^2 h = \frac{1}{3}\pi(8)^2(4\sqrt{5}) \approx 600\text{ m}^3$$

