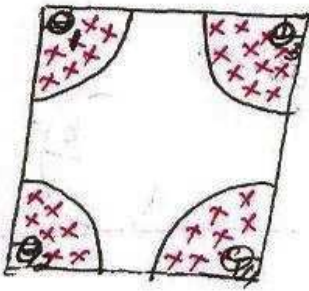


(15)



area of shaded region

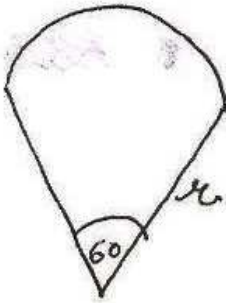
= area of 4 sectors

$$= \frac{\pi r^2}{360} [\theta_1 + \theta_2 + \theta_3 + \theta_4]$$

$$= \frac{22 \times 22 \times 21 \times 21}{7 \times 360} [360] \quad [\text{Angle sum property of quadrilateral}]$$

$$= 1386 \text{ cm}^2$$

(16)



length of arc = 20 cm

$$2\pi r \frac{\theta}{360} = 20$$

$$2 \times \frac{22}{7} \times r \times \frac{60}{360} = 20$$

$$\Rightarrow r = \frac{210}{11} \text{ cm}$$