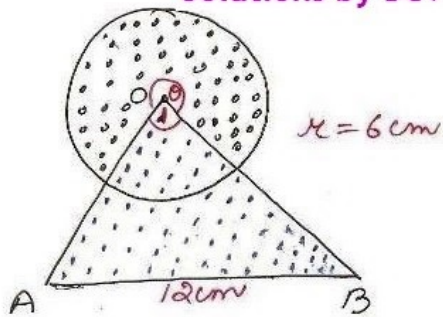


④



$\triangle OAB$  is equilateral

$$\therefore \angle = 60^\circ$$

$$\begin{aligned} \theta &= 360 - \angle \\ &= 360 - 60 \\ &= 300^\circ \end{aligned}$$

$$\begin{aligned} \text{area of } \triangle OAB &= \frac{\sqrt{3}}{4} \text{ side}^2 \\ &= \frac{\sqrt{3}}{4} \times 12 \times 12 \times 3 \\ &= 36\sqrt{3} \text{ cm}^2 \end{aligned}$$

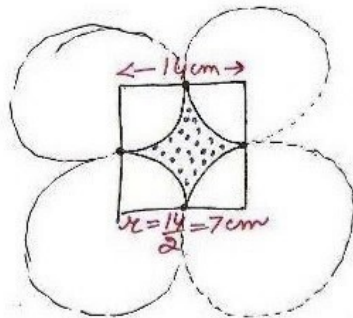
area of Major sector

$$\begin{aligned} &= \pi r^2 \frac{\theta}{360} \\ &= \frac{22}{7} \times 6 \times 6 \times \frac{300}{360} \\ &= \frac{660}{7} \text{ cm}^2 \end{aligned}$$

required area

$$\begin{aligned} &= \left( 36\sqrt{3} + \frac{660}{7} \right) \text{ cm}^2 \\ &= 62.28 + 94.29 \\ &= 156.57 \text{ cm}^2 \end{aligned}$$

⑦



area of shaded region

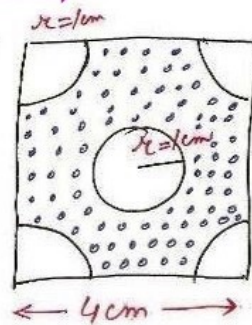
$$\begin{aligned} &= \text{area of Square} \\ &\quad - \text{area of 4 quadrants} \end{aligned}$$

$$\begin{aligned} &= \text{side}^2 - 4 \times \frac{\pi r^2}{4} \\ &= 14^2 - \frac{22}{7} \times 7 \times 7 \end{aligned}$$

$$= 196 - 154$$

$$= 42 \text{ cm}^2$$

⑤



area of shaded region

$$\begin{aligned} &= \text{area of square} \\ &\quad - (\text{area of } \odot + \text{area of 4quad.}) \end{aligned}$$

$$= \text{side}^2 - \left( \pi r^2 + 4 \times \frac{\pi r^2}{4} \right)$$

$$= 4^2 - 2\pi r^2$$

$$= 16 - 2 \times \frac{22}{7} \times 1 \times 1$$

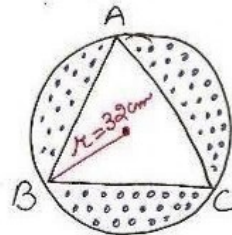
$$= 16 - \frac{44}{7}$$

$$= \frac{112 - 44}{7}$$

$$= \frac{68}{7}$$

$$= 9.71 \text{ cm}^2$$

⑥



$$r = 32 \text{ cm}$$

$\therefore$  Side of inscribed

$$\begin{aligned} \text{equilateral } \triangle &= r \times \sqrt{3} \\ &= 32\sqrt{3} \text{ cm} \end{aligned}$$

required area

$$\begin{aligned} &= \text{area of } \odot - \text{ar } (\triangle ABC) \\ &= \pi r^2 - \frac{\sqrt{3}}{4} s^2 \end{aligned}$$

$$= \frac{22}{7} \times 32 \times 32 - \frac{\sqrt{3}}{4} \times 32\sqrt{3} \times 32\sqrt{3}$$

$$= 32^2 \left( \frac{22}{7} - \frac{3\sqrt{3}}{4} \right)$$

$$= 1024 \left( \frac{22}{7} - \frac{3\sqrt{3}}{4} \right)$$

$$= \left( \frac{22528}{7} - 768\sqrt{3} \right) \text{ cm}^2$$

$$= \frac{13227.52}{7}$$

$$= 1889.65 \text{ cm}^2$$