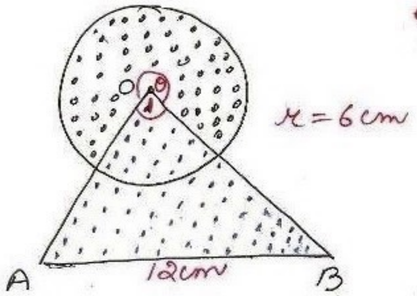
ex 12.3

(4)



$\triangle OAB$ is equilateral

$\therefore \angle = 60°$

$\theta = 360 - \angle$

$= 360° - 60°$

$= 300°$

area of $\triangle OAB = \frac{\sqrt{3}}{4} \text{side}^2$

$= \frac{\sqrt{3}}{\cancel{4}} \times 12 \times \cancel{12}\,3$

$= 36\sqrt{3}\ cm^2$

area of Major sector

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

$= \frac{22}{7} \times 6 \times \cancel{6} \times \frac{\cancel{300}\,5}{\cancel{360}\,\cancel{6}}$

$= \frac{660}{7}\ cm^2$

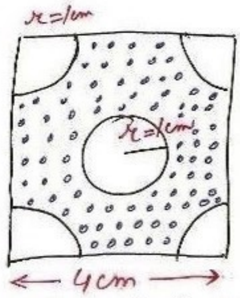
required area

$= \left(36\sqrt{3} + \frac{660}{7}\right) cm^2$

$= 62.28 + 94.29$

$= 156.57\ cm^2$

(5)



area of shaded region

= area of square − (area of ⊙ + area of 4 quad.)

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

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

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

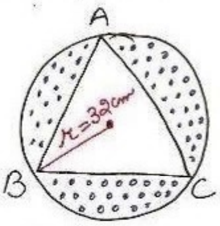
$= 16 - \frac{44}{7}$

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

$= \frac{68}{7}$

$= 9.71\ cm^2$

(6)



$r = 32 cm$

$\therefore$ side of inscribed equilateral $\triangle = r \times \sqrt{3}$

$= 32\sqrt{3}\ cm$

required area

= area of ⊙ − ar ($\triangle ABC$)

$= \pi r^2 - \frac{\sqrt{3}}{4} s^2$

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

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

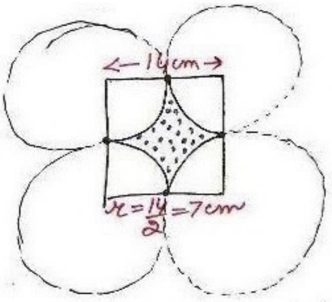
$= 1024 \left(\frac{22}{7} - \frac{3\sqrt{3}}{4}\right)$

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

$= \frac{13227.52}{7}$

$= 1889.65\ cm^2$

(7)



area of shaded region

= area of square − area of 4 quadrants

$= \text{side}^2 - \cancel{4} \times \frac{\pi r^2}{\cancel{4}}$

$= 14^2 - \frac{22}{\cancel{7}} \times 7 \times \cancel{7}$

$= 196 - 154$

$= 42\ cm^2$