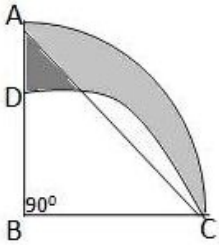
Question 55:



In ΔABC, $\angle B = 90^\circ$, AB = 48 cm, BC = 14 cm

$\therefore\ AC^2 = AB^2 + AC^2 = 48^2 + 14^2$

$= 2304 + 196 = 2500$

$\therefore\ AC = 50$ cm

Area of $\Delta ABC = \frac{1}{2} \times 48 \times 14\ cm^2 = 336\ cm^2$

Area of semi-circle APC

$$= \frac{1}{2}\pi r^2 = \frac{1}{2} \times \frac{22}{7} \times 25 \times 25\ cm^2$$

$$= \frac{11 \times 625}{7}\ cm^2 = \frac{6875}{7}\ cm^2$$

$$= 982.14\ cm^2$$

Area of quadrant BDC with radius 14 cm

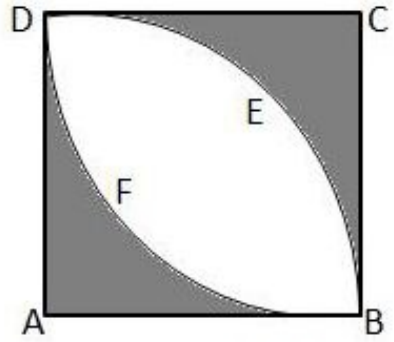
$$= \frac{1}{4} \times \frac{22}{7} \times 14 \times 14\ cm^2 = 154\ cm^2$$

Shaded area = Area of ΔABC + Area of semi-circle APC - Area of quadrant BDC

$$= (336 + 982.14 - 154)\,cm^2$$

$$= (1318.14 - 154)\,cm^2 = 1164.14\,cm^2$$

Question 56:



Radius of quadrant ABED = 16 cm

Its area = $\frac{1}{4} \times \frac{22}{7} \times 16 \times 16 \text{ cm}^2$

Area of Δ ABD

$= \frac{1}{2} \times 16 \times 16 \text{ cm}^2$

$= 128 \text{ cm}^2$

Area of segment DEB

$= \frac{11 \times 128}{7} - 128$

$= 128\left(\frac{11-7}{7}\right)\text{cm}^2 = \frac{128 \times 4}{7}\text{cm}^2 = \frac{512}{7} \text{ cm}^2$

Area of segment DFB = $\frac{512}{7} \text{ cm}^2$

Total area of segments = $2 \times \frac{512}{7} \text{ cm}^2 = \frac{1024}{7}$

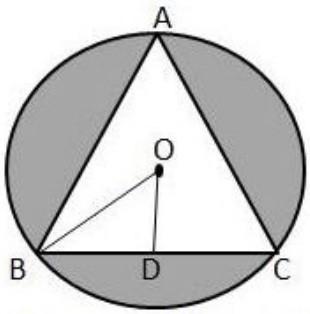
Shaded area = Area of square ABCD - Total area of segments

$= \left(16 \times 16 - \frac{1024}{7}\right)\text{cm}^2$

$= \left(256 - \frac{1024}{7}\right)\text{cm}^2 = \frac{1792 - 1024}{7}\text{cm}^2$

$= \frac{768}{7}\text{cm}^2 = 109.7 \text{ cm}^2$

Question 57:



Radius of circular table cover = 70 cm

$\therefore$ Area of the circular cover = $\pi r^2 = \frac{22}{7} \times 70 \times 70 \text{ cm}^2 = 15400 \text{ cm}^2$

In Δ BOD, $\angle D = 90^\circ$, $\angle OBD = 30^\circ$

$\therefore \frac{BD}{OB} = \cos 30^\circ = \frac{\sqrt{3}}{2}$

$\Rightarrow BD = OB \cos 30^\circ$

$= 70 \times \frac{\sqrt{3}}{2} \text{cm}$

$= 35\sqrt{3} \text{ cm}$

$\Rightarrow BC = 2BD = 2 \times 35\sqrt{3} = 70\sqrt{3}$

Area of $\Delta ABC = \frac{\sqrt{3}}{4} \times a^2 = \frac{\sqrt{3}}{4} \times 70\sqrt{3} \times 70\sqrt{3}$

$[\because \Delta ABC \text{ is equilateral}]$

$= \frac{4900 \times 3 \times \sqrt{3}}{4} \text{cm}^2 = 1225 \times 3 \times \sqrt{3}$

$= 3675\sqrt{3} \text{ cm}^2 = 6365.1 \text{ cm}^2$

Shaded area = Area of circle - Area of Δ ABC

$= (15400 - 6365.1) \text{ cm}^2 = 9034.9 \text{cm}^2$

********** END **********