



Exercise 17A

Question 22:

Perimeter of triangle = 324 cm

(i) Length of third side = $(324 - 85 - 154) \text{ m} = 85 \text{ m}$

Let $a = 85 \text{ m}$, $b = 154 \text{ m}$, $c = 85 \text{ m}$

$$\text{Then, } s = \frac{a+b+c}{2} = \left(\frac{85+154+85}{2} \right) \text{ m} = 162 \text{ m}$$

$$\therefore (s-a) = 77, (s-b) = 8 \text{ and } (s-c) = 77$$

$$\begin{aligned} \text{Area} &= \sqrt{s(s-a)(s-b)(s-c)} \\ &= \sqrt{162 \times 77 \times 8 \times 77} = 36 \times 77 = 2772 \text{ m}^2 \end{aligned}$$

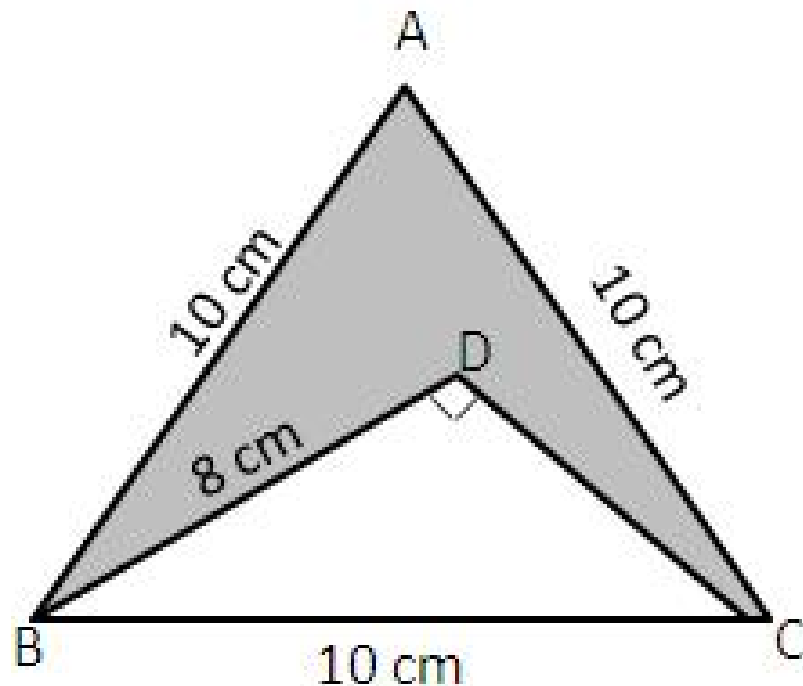
(ii) The base = 154 cm and let the perpendicular = h cm

$$\text{Area of triangle} = \left(\frac{1}{2} \times 154 \times h \right) = 2772 \text{ m}^2$$

$$h = \frac{2772}{77} = 36 \text{ m}$$

Hence, required length of the perpendicular of the triangle is 36 m.

Question 23:



Area of shaded region = Area of $\triangle ABC$ - Area of $\triangle DBC$

First we find area of $\triangle ABC$

$$\therefore \text{Area} = \frac{\sqrt{3}}{4} a^2 = \left(\frac{\sqrt{3}}{4} \times 10 \times 10 \right) \text{cm}^2$$

$$= 43.30 \text{ cm}^2$$

Second we find area of $\triangle DBC$ which is right angled

$$\therefore \text{Area of } \triangle DBC = \frac{1}{2} \times \text{Base} \times \text{Height}$$

$$\text{Height} = \sqrt{BC^2 - DB^2} = \sqrt{10^2 - 8^2}$$

$$= \sqrt{100 - 64} = \sqrt{36} \text{ cm} = 6 \text{ cm}$$

$$\therefore \text{Area} = \frac{1}{2} \times DB \times DC = \left(\frac{1}{2} \times 8 \times 6 \right) \text{cm}^2$$

$$= 24 \text{ cm}^2$$

Area of shaded region = Area of $\triangle ABC$ - Area of $\triangle DBC$

$$= (43.30 - 24) = 19.30$$

Area of shaded region = 19.3

Question 24:

Let $\triangle ABC$ is a isosceles triangle. Let AC, BC be the equal sides

Then AC = BC = 10cm. Let AB be the base of $\triangle ABC$ right angle at C.

$$AB = \sqrt{AC^2 + BC^2} = \sqrt{(10)^2 + (10)^2} \text{ cm}^2$$

$$= \sqrt{200} \text{ cm} = 10\sqrt{2} \text{ cm}$$

$$\text{Perimeter} = (2a + b) \text{ sq.unit}$$

$$= (2 \times 10 + 10\sqrt{2}) \text{ cm}$$

$$= (20 + 10 \times 1.414) \text{ cm}$$

$$= (20 + 14.14) \text{ cm}$$

$$= 34.14 \text{ cm}$$

Area of right isosceles triangle ABC

$$= \frac{1}{2} \times 10 \times 10 \text{ cm}^2 = 50 \text{ cm}^2$$

Hence, area = 50 cm^2 and perimeter = 34.14 cm

***** END *****