



Exercise 17A

Question 13:

Let each side of the equilateral triangle be a cm

$$\therefore \text{area of equilateral triangle} = \frac{\sqrt{3}}{4} a^2$$

$$\frac{\sqrt{3}}{4} a^2 = 81\sqrt{3} \Rightarrow a^2 \left(\frac{81\sqrt{3} \times 4}{\sqrt{3}} \right) = 324$$

$$\Rightarrow a = \sqrt{324} \text{ cm} = 18 \text{ cm}$$

Height of equilateral triangle

$$= \left(\frac{\sqrt{3}}{2} a \right) = \left(\frac{\sqrt{3}}{2} \times 18 \right) \text{ cm} = 9\sqrt{3} \text{ cm}$$

Question 14:

Base of right angled triangle = 48 cm

Height of the right angled triangle =

$$\sqrt{(\text{hypotenuse})^2 - (\text{base})^2}$$

$$\text{height} = \sqrt{(50)^2 - (48)^2} \text{ cm}$$

$$= \sqrt{2500 - 2304} \text{ cm}$$

$$= \sqrt{196} \text{ cm} = 14 \text{ cm}$$

$$\text{Area of triangle} = \left(\frac{1}{2} \times \text{Base} \times \text{Height} \right) \text{ cm}^2$$

$$= \left(\frac{1}{2} \times 48 \times 14 \right) \text{ cm}^2 = 336 \text{ cm}^2$$

Question 15:

Let the hypotenuse of right angle triangle = 6.5 m

Base = 6 cm

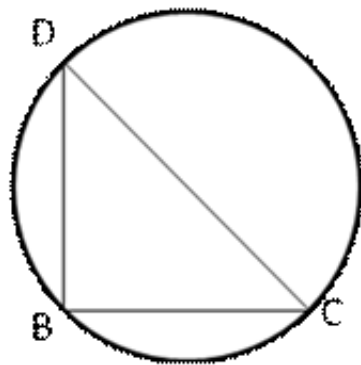
$$\begin{aligned}
 \text{Perpendicular} &= \sqrt{(\text{Hypotenuse})^2 - (\text{base})^2} \\
 &= \sqrt{(6.5)^2 - (6)^2} \text{ cm} \\
 &= \sqrt{42.25 - 36} \text{ cm} = \sqrt{6.25} \text{ cm} \\
 &= 2.5 \text{ cm}
 \end{aligned}$$

$$\begin{aligned}
 \text{Area of triangle} &= \left(\frac{1}{2} \times \text{base} \times \text{height} \right) \\
 &= \left(\frac{1}{2} \times 6 \times 2.5 \right) \text{ cm}^2 = 7.5 \text{ cm}^2
 \end{aligned}$$

Hence, perpendicular = 2.5 cm and area of the triangle = 7.5 cm²

Question 16:

The circumcentre of a right triangle is the midpoint of the hypotenuse



Hypotenuse = 2 × (radius of circumcircle)

= (2 × 8) cm = 16 cm

Base = 16 cm, height = 6 cm

Area of right angled triangle

$$= \left(\frac{1}{2} \times \text{base} \times \text{height} \right)$$

$$= \left(\frac{1}{2} \times 16 \times 6 \right) \text{ cm} = 48 \text{ cm}^2$$

Hence, area of the triangle = 48 cm²

***** END *****