

24/11/2020
TUESDAY

MATHEMATICS

STD-8
class-65

1) In ΔABC , if $\angle A = 70^\circ$ and $BC = 10$ cm, what is its circumradius?

Ans) $BC = 2r \sin A$, $10 = 2r \sin 70^\circ$

$$2r \times \sin 70^\circ = 10$$

$$2r \times 0.9397 = 10$$

$$\therefore r = \frac{10}{2 \times 0.9397}$$

$$r = \underline{\underline{5.32 \text{ cm}}}$$

$$\text{Circumradius} = \underline{\underline{5.32 \text{ cm}}}$$

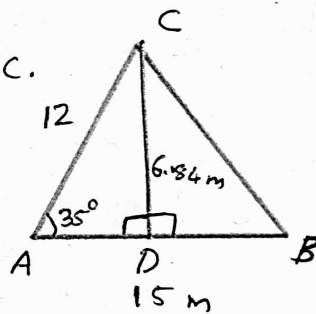
2) Two sides of a triangular shaped garden are 12 m and 15 m and the angle between these sides is 35° . Find the area of this garden.

Ans) In ΔABC , draw a perpendicular to AB from C .

ΔADC is a right triangle

$$\sin 35^\circ = \frac{CD}{12}$$

$$CD = 12 \times 0.57 = \underline{\underline{6.84 \text{ m}}}$$



$$\text{Area of the garden} = \frac{1}{2} \times AB \times CD$$

$$= \frac{1}{2} \times 15 \times 6.84$$

$$= \underline{\underline{51.3 \text{ cm}^2}}$$

3) From the top of a building 60 m high, the angles of depression of the top and bottom of a tower are 30° and 60° respectively. Find the height of a tower.

Ans) $AB = 60$ m

Since the angles of $\triangle PAB$ are $30^\circ, 60^\circ, 90^\circ$, its sides will be in the ratio $1 : \sqrt{3} : 2$

$$AB = 60, AP = \frac{60}{\sqrt{3}}, QR = \frac{60}{\sqrt{3}}$$

Since the angles of $\triangle QRB$ are $30^\circ, 60^\circ, 90^\circ$

$$BR = \frac{60}{\sqrt{3}} + \sqrt{3} = \frac{60}{\sqrt{3} \times \sqrt{3}} = \frac{60}{3} = \underline{\underline{20}} \text{ m}$$

$$AR = 60 - 20 = 40$$

$$\therefore PQ = 40.$$

Height of the tower = 40 m

