12/11/2020
THURSDAY

MATHEMATICS

STD - X
class - 58

Assignment

1) What is the circumradius of an equilateral triangle of sides 8 centimetres. ?

Ans)

If the circumradius is r,

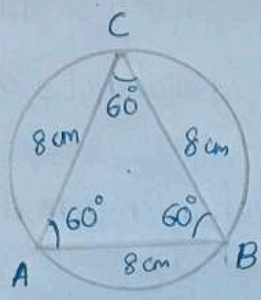
$AB = 2r\sin C^\circ$

$8 = 2r\sin 60^\circ$

$= 2r \times \frac{\sqrt{3}}{2}$

$8 = \sqrt{3}r$

$\therefore r = \frac{8}{\sqrt{3}}$ cm



Circumradius $= \frac{8}{\sqrt{3}}$ cm

2. The figure shows a triangle and its circum circle.

i) compute the diameter of the circle.

ii) compute the lengths of the other two sides of the triangle.

Ans) i) $\angle C = 180 - (50 + 60) = 70^\circ$

If the circumradius is r,

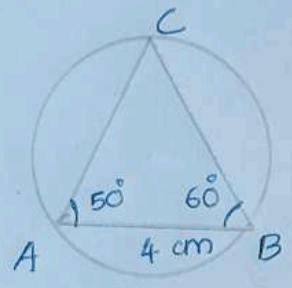
$AB = 2r\sin C^\circ$

$4 = 2r\sin 70^\circ$

$= 2r \times 0.9397$

$4 = 1.8794r$

$\therefore r = \frac{4}{1.8794} = 2.13$ cm



$\therefore$ Diameter of the circle $= 2 \times 2.13$

$= \underline{4.26}$ cm

ii) $BC = 2r\sin A^\circ = 2r\sin 50^\circ$

$= 2 \times 2.13 \times 0.7660$

$= \underline{3.26}$ cm

$AC = 2r\sin B^\circ = 2r\sin 60$

$= 2 \times 2.13 \times 0.8660 = \underline{3.69}$ cm