MATHEMATICS

Assignment

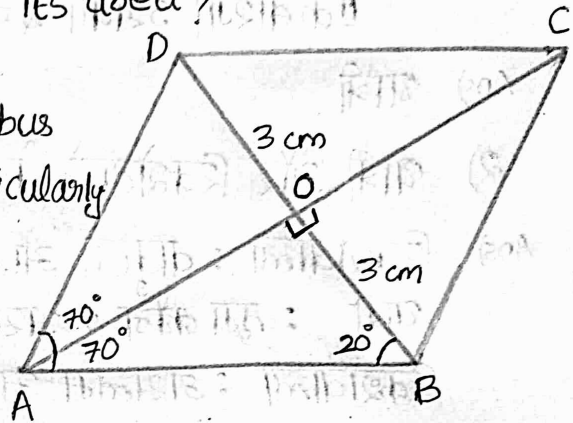1) One angle of a rhombus is $140°$ and the smallest diagonal is 6 cm. What is its area?

Ans)

The diagonals of a rhombus bisect each other perpendicularly

DB = smallest diagonal = 6 cm

$\therefore OD = OB = 3$ cm

$\angle A = 140°$

In $\triangle AOB$,

$$\tan 70° = \frac{opposite}{adjacent} = \frac{OB}{OA}$$

$$\therefore 2.7475 = \frac{3}{OA}$$

$$\therefore OA = 3 \times 2.7475 = \underline{\underline{8.23}}$$

$$\therefore AC = 8.23 \times 2 = \underline{\underline{16.46}}$$

$$\therefore Area = \frac{1}{2} d_1 d_2$$

$$= \frac{1}{2} \times \overset{3}{\cancel{6}} \times 16.46$$

$$= \underline{\underline{49.38 \ cm^2}}$$

2) In $\triangle ABC$, $AB = 8$ cm, $\angle A = 50°$, $\angle B = 70°$

i). Find the perpendicular distance.

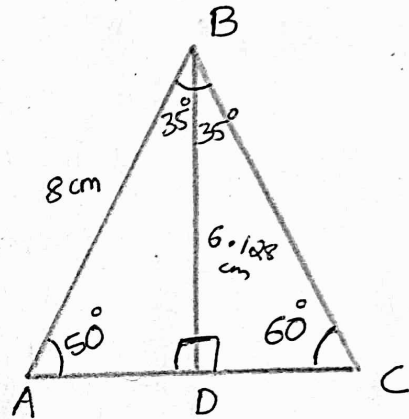ii) Find the area.

Ans)

In $\triangle ABD$,

i)

$$\sin 50 = \frac{BD}{AB}$$

$$0.7660 = \frac{BD}{8}$$

$$BD = 8 \times 0.7660$$

$$BD = \underline{\underline{6.128 \text{ cm}}}$$

ii) $$\tan 35 = \frac{AD}{BD}$$

$$0.7002 = \frac{AD}{6.128} \qquad \therefore AD = 0.7002 \times 6.128$$

$$= \underline{\underline{4.29 \text{ cm}}}$$

$$\therefore AC = 4.29 \times 2 = \underline{\underline{8.58 \text{ cm}}}$$

$$\therefore Area = \frac{1}{2} \times 8.58 \times 6.128$$

$$= \underline{\underline{26.28 \text{ cm}^2}}$$