Assignment

1. One angle of a rhombus is 140° and its smaller diagonal is 6 cm. Find its area.

Ans:-
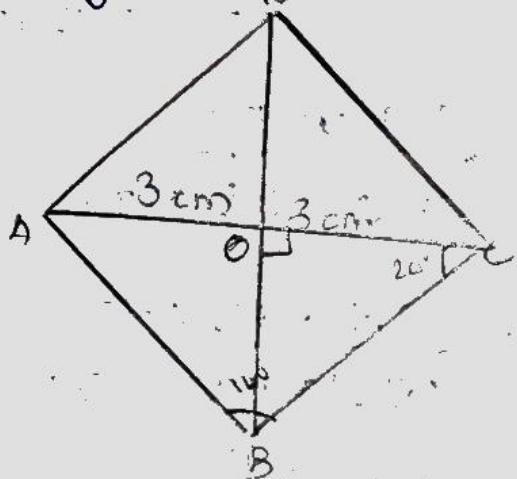
$$OC = \frac{6}{2} = 3cm$$

$$\angle OCB = 180° - (90 + 70)$$

$$= 180° - 160°$$

$$= 20°$$

$$Tan\ 20° = \frac{Opposite\ side}{adjacent\ side}$$

$$0.3639 = \frac{OB}{3}$$

$$OB = 0.3639 \times 3$$

$$= \underline{1.0917\ cm}$$

$$diagonal = OB \times 2$$

$$= 1.0917 \times 2$$

$$= 2.1834$$

$$\text{Area} = \frac{d_1 d_2}{2}$$

$$d_1 = 6\,cm$$

$$d_2 = 2.1834\,cm$$

$$\text{Area} = \frac{\overset{3}{6} \times 2.1834}{2}$$

$$= 6.55\,cm^2$$

2. In a triangle ABC, AB = 8 cm, $\angle A = 50°$
$\angle B = 70°$, $\angle C = 60°$.   Find perpendicular distance
from C to AB and find the area.

Ans:-
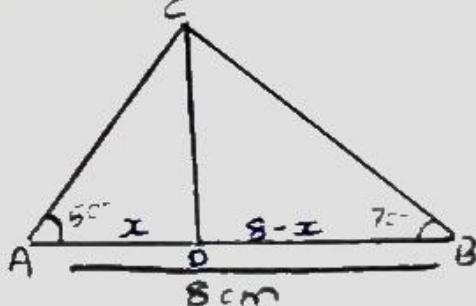
$$CD = x \times \tan 50° \quad —①$$
$$CD = (8-x) \times \tan 70° \quad —②$$

$$① = ②$$

$$x \times \tan 50° = (8-x) \times \tan 70°$$
$$x \times \tan 50° = 8x \tan 70° - x \tan 70°$$
$$x \times \tan 50° + x \times \tan 70° = 8 \tan 70°$$

$$x (\tan 50° + \tan 70°)$$
$$\qquad\qquad = 8 \tan 70°$$

$$CD = 5.57 \times 1.1918$$

$$x = \frac{8 \tan 70}{\tan 50 + \tan 70}$$

$$= 6.63 \text{ cm}$$

$$x = \frac{8 \times 2.7475}{1.1918 + 2.7475}$$

Area $= \frac{1}{2} bh$

$$= \frac{21.98}{3.9393}$$

base $= 8$ cm
height $- 6.63$

$$x = 5.57 \text{ cm}$$

Area $= \frac{6.63 \times 8 \, 4}{2}$

$$= 26.55 \text{ cm}^2$$