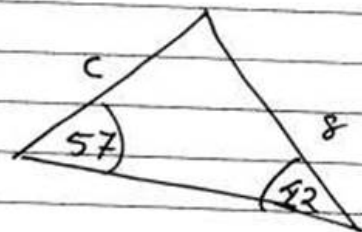


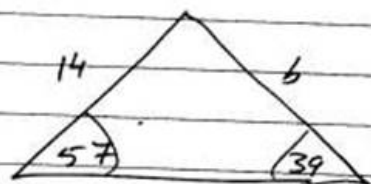
Q1



$$\frac{c}{\sin 42} = \frac{8}{\sin 57}$$

$$c = \frac{8}{\sin 57} \times \sin 42$$

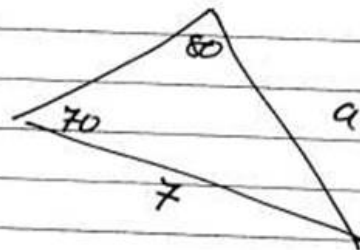
$$c = 6.4 \text{ cm}$$



$$\frac{b}{\sin 57} = \frac{14}{\sin 39}$$

$$b = \frac{14}{\sin 39} \times \sin 57$$

$$b = 18.7 \text{ cm}$$

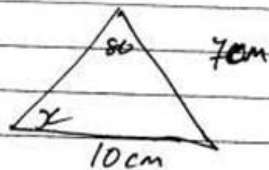


$$\frac{a}{\sin 70} = \frac{7}{\sin 80}$$

$$a = \frac{7}{\sin 80} \times \sin 70$$

$$a = 6.7 \text{ cm}$$

Q2
(i)



$$\frac{\sin x}{7} = \frac{\sin 80}{10}$$

$$\sin x = \frac{\sin 80}{10} \times 7$$

$$\sin x = 0.6894$$

$$x = \sin^{-1}(0.6894)$$

$$x = 44^\circ$$

(ii) $\frac{\sin x}{12} = \frac{\sin 42}{14}$

$$\sin x = \frac{\sin 42}{14} \times 12 = 0.5735$$

$$x = \sin^{-1}(0.5735)$$

$$x = 35^\circ$$

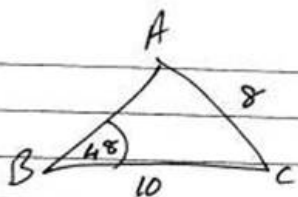
(iii) $\frac{\sin x}{8} = \frac{\sin 51}{9.5}$

$$\sin x = \frac{\sin 51}{9.5} \times 8 = 0.6544$$

$$x = \sin^{-1}(0.6544)$$

$$x = 41^\circ$$

Q3



(i) find $\angle BAC$

$$\frac{\sin A}{10} = \frac{\sin 48}{8}$$

$$\sin A = \frac{\sin 48 \times 10}{8}$$

$$\sin A = 0.9289$$

$$A = \sin^{-1}(0.9289)$$

$$A = 68.3^\circ$$
$$= 68^\circ 18'$$

(ii) $|AB|$

$\angle ACB$ is required. $180 - 48 - 68.3 = 63.7$

$$\frac{x}{\sin 63.7} = \frac{8}{\sin 48}$$

$$x = \frac{8}{\sin 48} \times \sin 63.7 = 9.7 \text{ units}$$

(iii) Area = $\frac{1}{2} ab \sin C$

$$A = \frac{1}{2} (10)(9.7)(\sin 48)$$
$$= 36 \text{ sq units}$$

$$\text{Q4 (i) Area} = \frac{1}{2} (10)(8)(\sin 45) \\ = 28.3 \text{ cm}^2$$

$$\text{(ii) Area} = \frac{1}{2} (5.5)(3.5)(\sin 100) \\ = 9.5 \text{ cm}^2$$

$$\text{(iii) Area} = \frac{1}{2} (8)(7.5) \sin(80) \\ = ~~29.5~~ \text{ cm}^2 \quad 29.5 \text{ cm}^2$$

$$\text{Q5 (1) } 25 = \frac{1}{2} (8)(11) \sin A.$$

$$25 = 44 \sin A$$

$$\frac{25}{44} = \sin A$$

$$\sin^{-1}\left(\frac{25}{44}\right) = A$$

$$35^\circ = A$$

Q5 (i) $25 = \frac{1}{2}(8)(11) \sin A$

$$25 = 44 \sin A$$

$$\frac{25}{44} = \sin A$$

$$\sin^{-1}\left(\frac{25}{44}\right) = A$$

$$35^\circ = A$$

(ii) $26 = \frac{1}{2}(6.5)(8) \sin B$

$$26 = 26 \sin B$$

$$\sin^{-1}\left(\frac{26}{26}\right) = B$$

$$90^\circ = B$$

(iii) $78 = \frac{1}{2}(13)(18) \sin C$

$$78 = 117 \sin C$$

$$\sin^{-1}\left(\frac{78}{117}\right) = C$$

$$42^\circ = C$$

Q6 (i) find $|BC|$

$$\text{find } \angle ACB \Rightarrow 180 - 46 \\ - 71 = \underline{\underline{63}}$$

$$\frac{x}{\sin 71} = \frac{22}{\sin 63}$$

$$x = \frac{22}{\sin 63} \times \sin 71$$

$$x = 23 \text{ cm.}$$

$$\begin{aligned} \text{(ii) Area} &= \frac{1}{2} (22)(23)(\sin 46) \\ &= 181.99 \\ &= 182 \text{ cm}^2 \end{aligned}$$

Q7 (i) find $|RQ|$

$$\frac{x}{\sin \dots} = \frac{58}{\dots}$$

Q7 (i) find $|RQ|$

$$\frac{x}{\sin 30} = \frac{\sqrt{8}}{\sin 45}$$

$$x = \frac{\sqrt{8}}{\sin 45} \times \sin 30$$

$$x = \frac{2\sqrt{2}}{1/\sqrt{2}} \times \frac{1}{2} \Rightarrow 2\sqrt{2} \times \frac{\sqrt{2}}{1} \times \frac{1}{2} = 2$$

$$x = 2 \text{ m}$$

(ii) find 3rd angle: $180 - 45 - 30 = 105^\circ$

$$\begin{aligned} \text{Area} &= \frac{1}{2} (\sqrt{8}) (2) \sin(105) \\ &= 1.732 \\ &= 2.7 \text{ m}^2 \end{aligned}$$

Q8

$$\text{Area} = \frac{1}{2} ab \sin C$$

$$6 = \frac{1}{2} (x+2)(x) \sin(150)$$

$$\frac{12}{\sin 150} = x^2 + 2x$$

$$24 = x^2 + 2x$$

$$0 = x^2 + 2x - 24$$

$$0 = (x - 4)(x + 6)$$

$$x = 4 \quad x = -4$$

Ans: $x = 4$.

Q9

$$\frac{\sin 32}{3} = \frac{\sin C}{5 \cdot 4}$$

$$\frac{\sin 32}{3} \times 5 \cdot 4 = \sin C$$

$$0.9539 = \sin C$$

$$\sin^{-1}(0.9539) = C$$

$$72.5 = C$$

$$\text{or } 180 - 72.5 = 107.$$

$$0.9539 = \sin C$$

$$\sin^{-1}(0.9539) = C$$

$$72.5 = C \quad \text{or} \quad 180 - 72.5 = 107.5$$

Q10 (i) find $|AB|$ 1st find $\angle ADB \Rightarrow 180^\circ - 43^\circ - 43^\circ = 94^\circ$

$$\frac{x}{\sin 94} = \frac{5}{\sin 43}$$

$$x = \frac{5}{\sin 43} \times \sin 94$$

$$x = 7.3 \text{ cm}$$

(ii) $|CD|$ Angle $\angle CAB = 180 - 43 - 72 = 65^\circ$

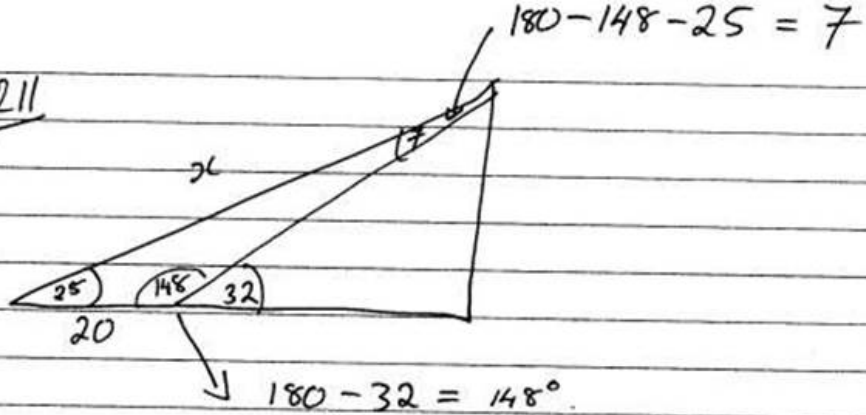
$$\frac{x}{\sin 65} = \frac{7.3}{\sin 72}$$

$$x = \frac{7.3}{\sin 72} \times \sin 65$$

$$x = 6.9565$$

$$x = 7.0 \text{ cm} \Rightarrow |CD| = 7 - 5 = 2 \text{ cm}$$

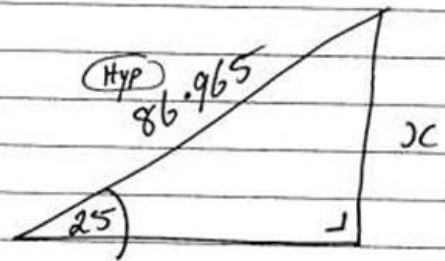
Q11



$$\frac{x}{\sin 148} = \frac{20}{\sin 7}$$

$$x = \frac{20}{\sin 7} \times \sin 148$$

$$x = 86.965$$



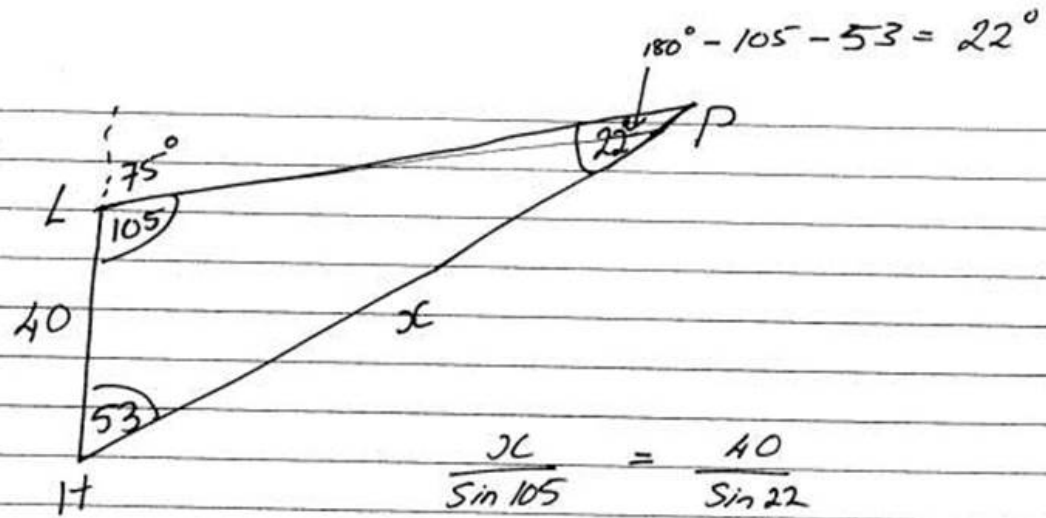
$$\sin \theta = \frac{O}{H}$$

$$\sin 25 = \frac{x}{86.965}$$

$$\sin(25) \times 86.965 = x$$

$$36.75 = x$$

Q.12



$$\frac{x}{\sin 105} = \frac{40}{\sin 22}$$

$$x = \frac{40}{\sin 22} \times \sin 105$$

$$x = 103.14.$$

$$x = 103 \text{ km.}$$