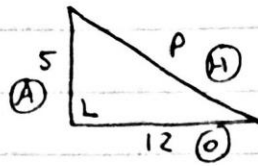


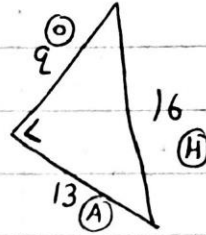
Revision Sheet Solutions

Q1. a) i)



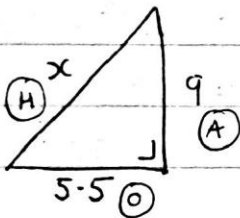
$$\begin{aligned}
 H^2 &= O^2 + A^2 \\
 p^2 &= 12^2 + 5^2 \\
 p^2 &= 144 + 25 \\
 p^2 &= 169 \\
 p &= \sqrt{169} \\
 \boxed{p} &= \boxed{13}
 \end{aligned}$$

ii)



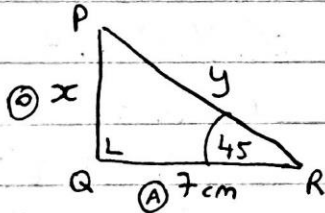
$$\begin{aligned}
 H^2 &= O^2 + A^2 \\
 16^2 &= 13^2 + q^2 \\
 256 &= 169 + q^2 \\
 87 &= q^2 \\
 \boxed{q} &= \boxed{\sqrt{87}}
 \end{aligned}$$

b)



$$\begin{aligned}
 H^2 &= O^2 + A^2 \\
 x^2 &= 5.5^2 + 9^2 \\
 x^2 &= 111.25 \\
 x &= \sqrt{111.25} = 10.5475\text{m} = \boxed{1055\text{cm}}
 \end{aligned}$$

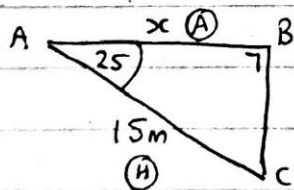
Q2. a)



i) $\tan 45 = \frac{x}{7}$
 $\Rightarrow x = 7 \tan 45$
 $= \boxed{7\text{cm}}$

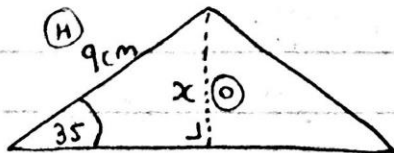
ii) $\cos 45 = \frac{7}{y}$
 $\Rightarrow y = \frac{7}{\cos 45}$
 $= \boxed{7\sqrt{2}\text{cm}}$

b)



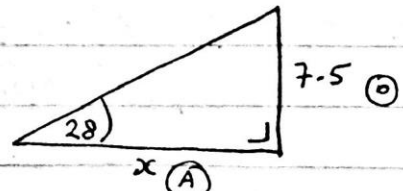
$$\begin{aligned}
 \cos 25 &= \frac{x}{15} \\
 \Rightarrow x &= 15 \cos 25 \\
 &= \boxed{13.59\text{m}}
 \end{aligned}$$

Q3. a)



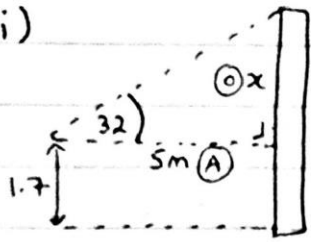
$$\begin{aligned}
 \sin 35 &= \frac{x}{9} \\
 \Rightarrow x &= 9 \sin 35 \\
 &= 5.16 \\
 &= \boxed{5.2\text{cm}}
 \end{aligned}$$

b)



$$\begin{aligned}
 \tan 28 &= \frac{7.5}{x} \\
 \Rightarrow x &= \frac{7.5}{\tan 28} \\
 &= \boxed{14.1}
 \end{aligned}$$

Q4. a) i)



$$\tan 32 = \frac{x}{5}$$

$$\Rightarrow x = 5 \tan 32$$

$$= 3.12 \text{ m}$$

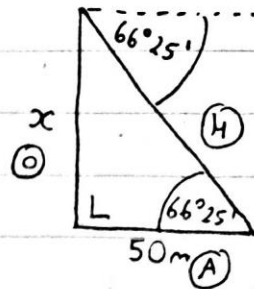
$$\Rightarrow \text{Height} = 3.12 + 1.7$$

$$= 4.82 \text{ m}$$

$$= \boxed{4.82 \text{ m}}$$

ii) Clinometer

b)



$$\text{i) } \tan 66^\circ 25' = \frac{x}{50}$$

$$\Rightarrow x = 50 \tan 66^\circ 25'$$

$$= 114.54 \text{ m} = \boxed{115 \text{ m}}$$

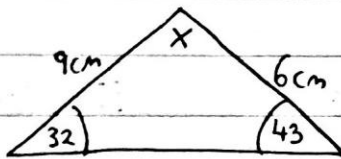
$$\text{ii) } H^2 = 0^2 + A^2$$

$$H^2 = 115^2 + 50^2$$

$$= 15725$$

$$\Rightarrow H = \sqrt{15725} = \boxed{125 \text{ m}}$$

Q5. a)



$$x = 180 - 32 - 43$$

$$= 105^\circ$$

$$\Rightarrow \text{Area} = \frac{1}{2}(9)(6) \sin 105$$

$$= 26.08$$

$$= \boxed{26 \text{ cm}^2}$$

b) Area = 25 cm²

$$\Rightarrow \frac{1}{2}(10)(12) \sin A = 25$$

$$60 \sin A = 25$$

$$\sin A = \frac{25}{60}$$

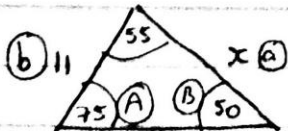
$$\sin A = \frac{5}{12}$$

$$\Rightarrow A = \sin^{-1}\left(\frac{5}{12}\right)$$

$$= 24.62$$

$$= \boxed{25^\circ}$$

Q6. a)



$$\frac{x}{\sin 75} = \frac{11}{\sin 50}$$

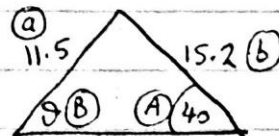
$$\Rightarrow x (\sin 50) = 11 (\sin 75)$$

$$\Rightarrow x = \frac{11 (\sin 75)}{\sin 50}$$

$$= 13.87$$

$$= \boxed{13.9 \text{ cm}}$$

b)



$$\frac{11.5}{\sin 40} = \frac{15.2}{\sin \theta}$$

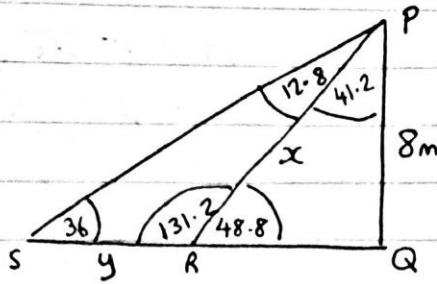
$$\Rightarrow 11.5 (\sin \theta) = 15.2 (\sin 40)$$

$$\Rightarrow \sin \theta = \frac{15.2 (\sin 40)}{11.5} = 0.8496$$

$$\Rightarrow \theta = \sin^{-1}(0.8496)$$

$$= 58.17^\circ = \boxed{58^\circ 10'}$$

Q7



i) $\sin 48.8 = \frac{8}{x}$
 $\Rightarrow x(\sin 48.8) = 8$
 $\Rightarrow x = \frac{8}{\sin 48.8}$
 $= \boxed{10.6 \text{ m}}$

Using ΔPRQ

ii) Using ΔSRP :

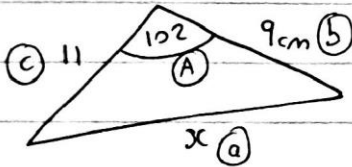
$$\frac{10.6}{\sin 36} = \frac{y}{\sin 12.8}$$

$$\Rightarrow y(\sin 36) = 10.6(\sin 12.8)$$

$$\Rightarrow y = \frac{10.6(\sin 12.8)}{\sin 36} = \boxed{4 \text{ m}}$$

Q8.

a)



$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$x^2 = 9^2 + 11^2 - 2(9)(11)\cos 102$$

$$x^2 = 81 + 121 - 198\cos 102$$

$$x^2 = 202 - 198\cos 102$$

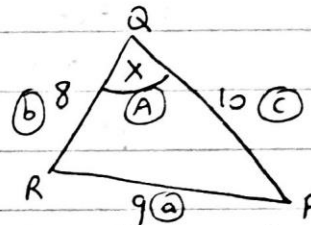
$$x^2 = 202 + 41.1665$$

$$x^2 = 243.1665$$

$$\Rightarrow x = \sqrt{243.1665}$$

$$= \boxed{15.6 \text{ cm}}$$

b)



$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$9^2 = 8^2 + 10^2 - 2(8)(10)\cos X$$

$$81 = 64 + 100 - 160\cos X$$

$$81 - 164 = -160\cos X$$

$$-83 = -160\cos X$$

$$\Rightarrow \cos X = \frac{83}{160} = 0.51875$$

$$\Rightarrow X = \cos^{-1}(0.51875)$$

$$= \boxed{58.75^\circ}$$

Q9. a) i) Area = $\frac{120}{360} \times \pi (30)^2$
 = 942.47
 = $\boxed{942.5 \text{ cm}^2}$

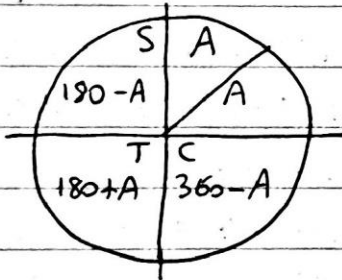
b) Length = $\frac{225}{360} \times 2\pi r$
 $\Rightarrow 7.5\pi = \frac{5}{4}\pi r$
 $\Rightarrow r = \frac{7.5}{5/4} = 6 \text{ cm}$

ii) Perimeter = Length + 2 Radii
 = $\frac{120}{360} \times 2\pi(30) + 60$
 = $\boxed{122.8 \text{ cm}}$

\Rightarrow Area = $\frac{225}{360} \times \pi (6)^2$
 = $\boxed{22.5\pi \text{ cm}^2}$

c) Area Shaded = Area Sector - Area Δ
 = $\left[\frac{130}{360} \times \pi (8)^2 \right] - \frac{1}{2}(8)(8)\sin 130$
 = 72.6 - 24.5
 = 48.1
 = $\boxed{48 \text{ cm}^2}$

Q10.



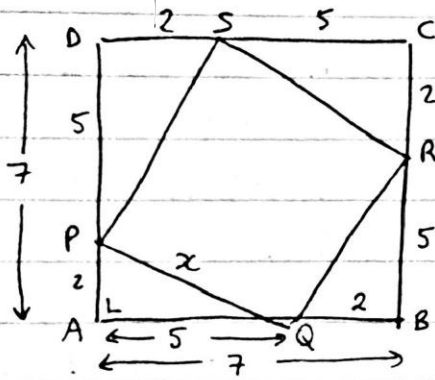
i) 135 in Quad 2 \Rightarrow cos is \ominus
 $180 - A = 135$
 $\Rightarrow A = 45^\circ$
 $\Rightarrow \cos 135 = -\cos 45 = \boxed{\frac{-1}{\sqrt{2}}}$

ii) 150 in Quad 2 \Rightarrow tan \ominus
 $180 - A = 150$
 $\Rightarrow A = 30^\circ$
 $\Rightarrow \tan 150 = -\tan 30$
 = $\boxed{\frac{-1}{\sqrt{3}}}$

iii) 330 in Quad 4 \Rightarrow sin is \ominus
 $360 - A = 330$
 $\Rightarrow A = 30^\circ$
 $\Rightarrow \sin 330 = -\sin 30 = \boxed{\frac{-1}{2}}$

iv) 225 in Quad 3 \Rightarrow tan \oplus
 $180 + A = 225$
 $\Rightarrow A = 45^\circ$
 $\Rightarrow \tan 225 = \tan 45 = \boxed{1}$

Q11.



$$H^2 = O^2 + A^2 \quad \text{Using } \triangle PAQ$$

$$x^2 = 2^2 + 5^2$$

$$x^2 = 4 + 25$$

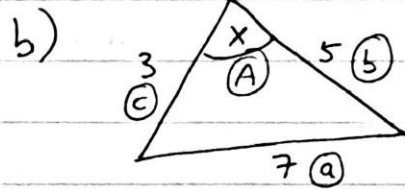
$$x^2 = 29$$

$$x = \sqrt{29}$$

$$\text{Area PQRS} = L \times L$$

$$\Rightarrow \text{Area PQRS} = \sqrt{29} \times \sqrt{29} = \boxed{29 \text{ cm}^2}$$

Q12. a) $\text{Area} = \frac{1}{2}(8)(12) \sin 30$
 $= \boxed{24 \text{ cm}^2}$



$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$7^2 = 5^2 + 3^2 - 2(3)(5) \cos X$$

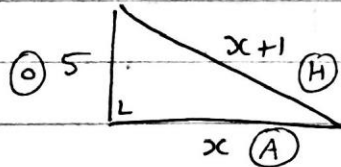
$$49 = 25 + 9 - 30 \cos X$$

$$15 = -30 \cos X$$

$$\Rightarrow \cos X = \frac{-15}{30} = -0.5$$

$$\Rightarrow X = \cos^{-1}(-0.5) = \boxed{120^\circ}$$

Q13.



$$H^2 = O^2 + A^2$$

$$(x+1)^2 = (x)^2 + (5)^2$$

$$(x+1)(x+1) = x^2 + 25$$

$$x(x+1) + 1(x+1) = x^2 + 25$$

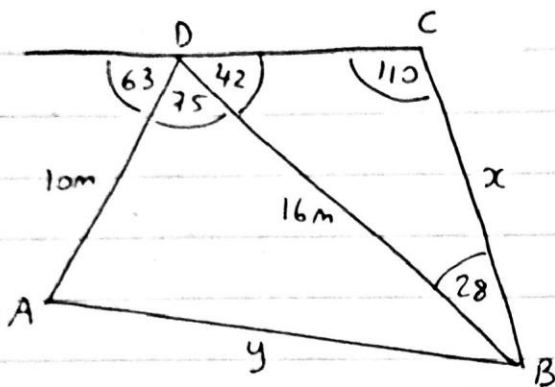
$$x^2 + x + x + 1 = x^2 + 25$$

$$2x = 25 - 1$$

$$2x = 24$$

$$x = \boxed{12}$$

Q14. a)



$$i) \frac{x}{\sin 42} = \frac{16}{\sin 110} \quad \text{Using } \triangle DCB$$

$$\Rightarrow x(\sin 110) = 16(\sin 42)$$

$$\Rightarrow x = \frac{16(\sin 42)}{\sin 110}$$

$$= \boxed{11.39 \text{ m}}$$

$$ii) \text{Area} = \frac{1}{2}(16)(11.39) \sin 28$$

$$= \boxed{42.78 \text{ m}^2}$$

b) Using $\triangle ADB$:

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$y^2 = 10^2 + 16^2 - 2(10)(16) \cos 75$$

$$y^2 = 100 + 256 - 320 \cos 75$$

$$y^2 = 356 - 320 \cos 75$$

$$y^2 = 356 - 82.822$$

$$y^2 = 273.178$$

$$\Rightarrow y = \sqrt{273.178} = \boxed{16.53 \text{ m}}$$