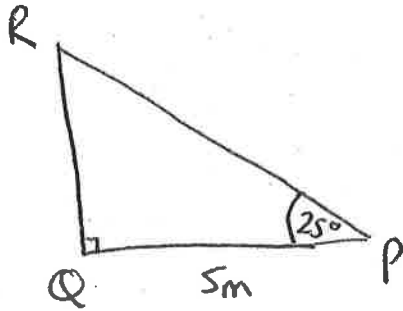


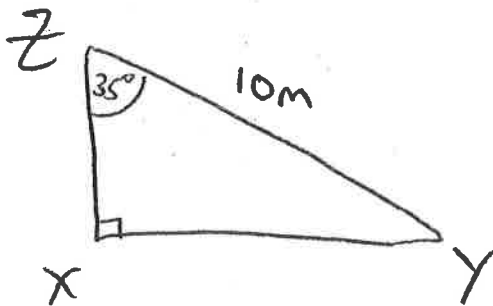
Trigonometry Worksheet

1)



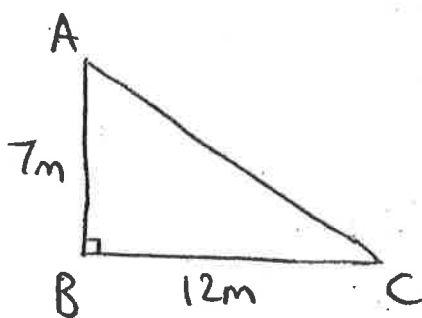
find QR .

2)



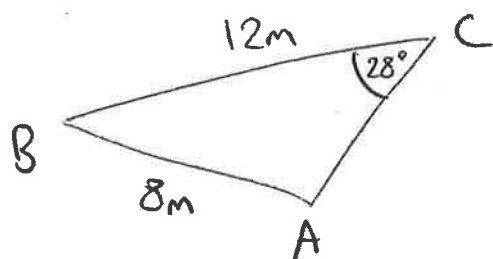
find XY

3)



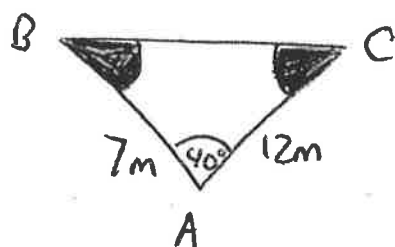
find angle C & angle A .

Q4)



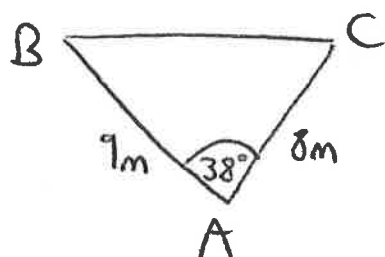
Find angle A, B and length AC

Q5)



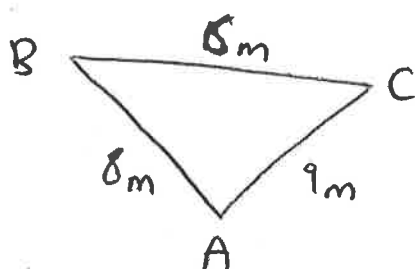
Find length BC.

Q6)



Find length BC

Q7)



Find angle A.

Trig worksheet answers.

21) $\tan 25 = \frac{QR}{5}$

$2.33m = QR$

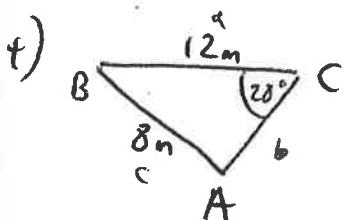
22) $\sin 35 = \frac{XY}{10}$

$5.74m = XY$

3) $\tan C = \frac{7}{12}$

$C = \tan^{-1}\left(\frac{7}{12}\right)$

$C = 30.26^\circ$ $\therefore A = 180 - 90 - 30.26$
 $A = 59.74^\circ$



Sine Rule

$$\frac{12}{\sin A} = \frac{AC}{\sin B} = \frac{8}{\sin 28}$$

$$\frac{12}{\sin A} = \frac{8}{\sin 28}$$

$$\frac{12 \sin 28}{8} = \sin A$$

$44.77^\circ = A$

$B = 180 - 28 - 44.77$

$B = 107.23^\circ$

$AC = \frac{8 \sin 107.23}{\sin 28}$

Q5) Cosine Rule

$$(BC)^2 = (12)^2 + (7)^2 - 2(12)(7)\cos 40$$

$$(BC)^2 = 144 + 49 - 128.70$$

$$BC = 8.02m$$

Q6) Cosine Rule

$$(BC)^2 = (8)^2 + (9)^2 - 2(8)(9)\cos 30$$

$$(BC)^2 = 64 + 81 - 113.47$$

$$BC = \sqrt{31.53}$$

$$BC = 5.62m$$

Q7) Cosine Rule

$$(15)^2 = (9)^2 + (8)^2 - 2(9)(8)\cos A$$

$$\cancel{225} = 81 + 64 - 144\cos A$$
$$36 = -144\cos A$$

$$-109 = -144\cos A$$

$$\frac{-109}{-144} = \cos A$$

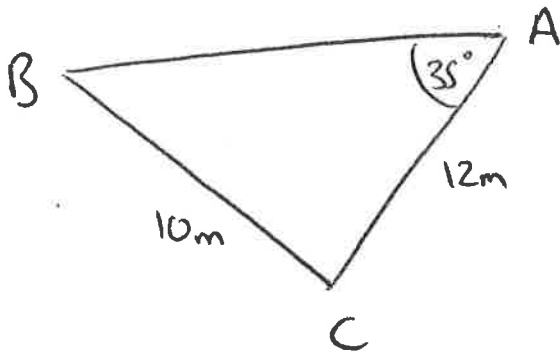
$$40.80^\circ = A$$

Sine/Cosine Rule Worksheet

- 2 sides & angle not between
- 2 angles 1 side } Sine

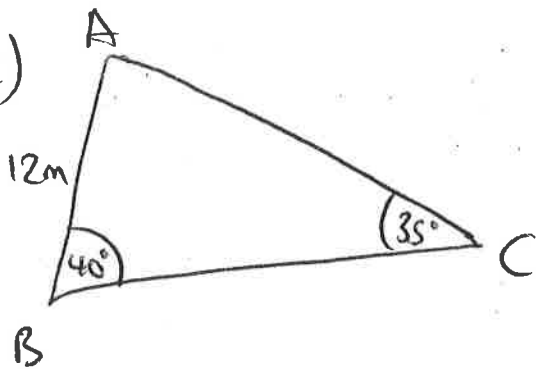
- 2 sides & angle between
- all 3 sides & no angles } Cosine

Q1)



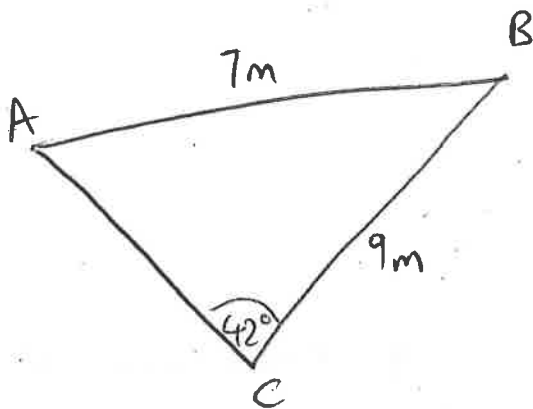
Find: (i) $\hat{B}$
(ii) $\hat{C}$
(iii) length AB

Q2)



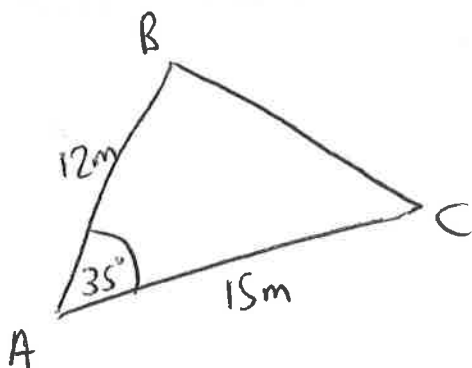
Find: (i) $\hat{A}$
(ii) AC
(iii) BC

Q3)



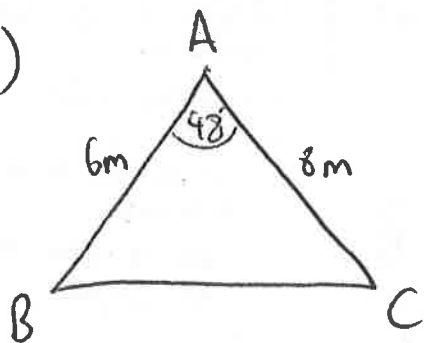
Find: (i) $\hat{A}$
(ii) $\hat{B}$
(iii) AC

Q4)



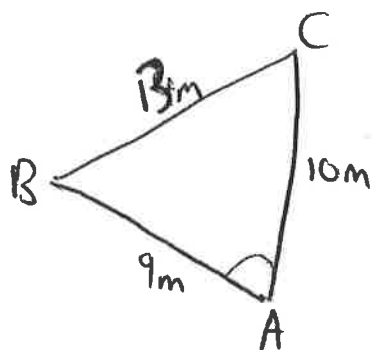
Find: BC

Q5)



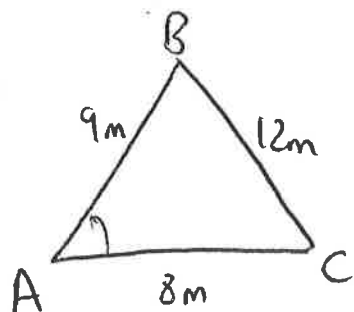
Find: BC

Q6)



Find angle A.

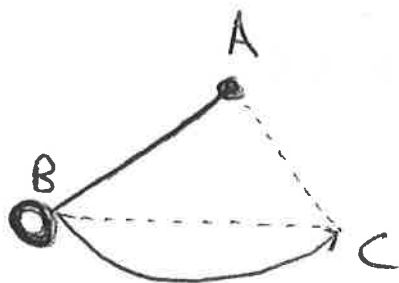
Q7)



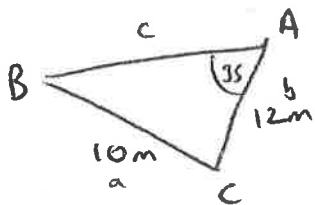
Find angle A.

Q8)

A pendulum of length 5 metres swings from Point B to point C, creating an angle at Point A of 105 degrees. Calculate the horizontal distance between Point B and Point C.



Q1)



$$\frac{10}{\sin 35} = \frac{12}{\sin B} = \frac{AB}{\sin C}$$

$$(i) \frac{10}{\sin 35} = \frac{12}{\sin B}$$

$$\sin B = \frac{12 \sin 35}{10}$$

$$\sin B = 0.69$$

$$B = 43.63^\circ$$

$$(ii) \hat{C} = 180 - 35 - 43.63$$

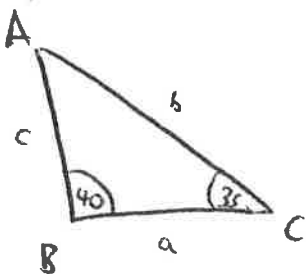
$$= 101.37^\circ$$

$$(iii) \frac{AB}{\sin 101.37} = \frac{10}{\sin 35}$$

$$AB = \frac{10 \sin 101.37}{\sin 35}$$

$$AB = 17.09 \text{ m}$$

Q2)



$$(i) \hat{A} = 180 - 35 - 40$$

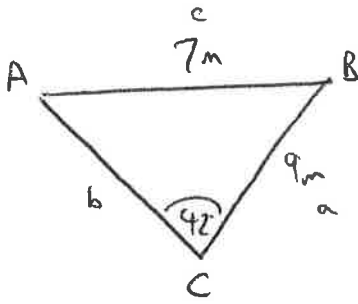
$$\hat{A} = 105^\circ$$

$$\frac{BC}{\sin 105} = \frac{AC}{\sin 40} = \frac{12}{\sin 35}$$

$$(ii) AC = \frac{12 \sin 40}{\sin 35} = \underline{13.45 \text{ m}}$$

$$(iii) BC = \frac{12 \sin 105}{\sin 35} = \underline{20.21 \text{ m}}$$

Q3)



$$\frac{9}{\sin A} = \frac{AC}{\sin B} = \frac{7}{\sin 42}$$

$$\frac{9}{\sin A} = \frac{7}{\sin 42}$$

$$\frac{9 \sin 42}{7} = \sin A$$

$$0.86 = \sin A$$

$$59.32^\circ = A$$

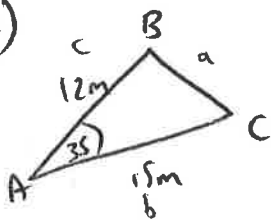
$$B = 180 - 42 - 59.32$$

$$B = 78.68$$

$$\frac{AC}{\sin 78.68} = \frac{7}{\sin 42}$$

$$AC = 10.26 \text{ m}$$

Q4)



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

$$BC^2 = 12^2 + 15^2 - 2(12)(15) \cos 35$$

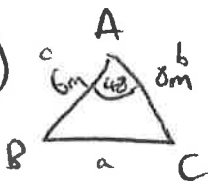
$$BC^2 = 144 + 225 - 294.89$$

$$BC = \sqrt{74.11}$$

$$BC = 8.61 \text{ m}$$

[doesn't really matter which way around b & c are]

Q5)



$$BC^2 = 8^2 + 6^2 - 2(8)(6) \cos 48$$

$$BC^2 = 64 + 36 - 64.24$$

$$BC = \sqrt{35.76}$$

$$BC = 5.98 \text{ m}$$

$$Q6) \quad 13^2 = 10^2 + 9^2 - 2(10)(9)\cos A$$

$$169 = 100 + 81 - 180 \cos A$$

$$-12 = -180 \cos A$$

$$\frac{-12}{-180} = \cos A$$

$$86.18^\circ = A$$

$$Q7) \quad 12^2 = 8^2 + 9^2 - 2(8)(9)\cos A$$

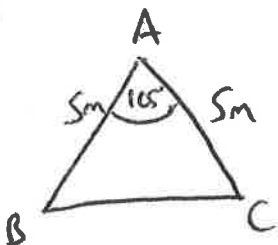
$$144 = 64 + 81 - 144 \cos A$$

$$-1 = -144 \cos A$$

$$\frac{-1}{-144} = \cos A$$

$$89.6^\circ = A$$

Q8)



$$BC^2 = 5^2 + 5^2 - 2(5)(5)\cos(105)$$

$$BC^2 = 25 + 25 + 12.94$$

$$BC = \sqrt{62.94}$$

$$BC = 7.93m$$

