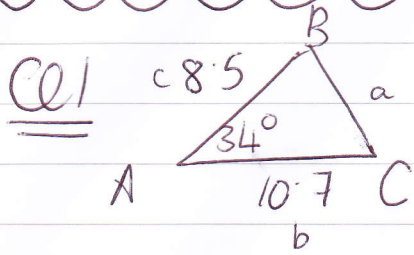
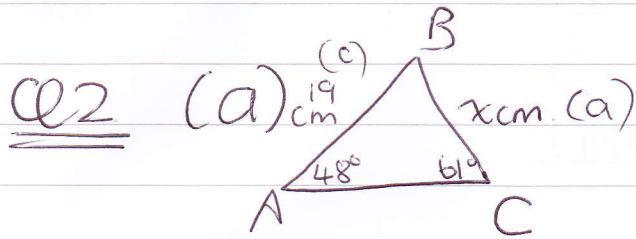


75

# Sine + Cosine Rule h/wrk.



$$\begin{aligned} \text{area} &= \frac{1}{2} \times b \times c \times \sin A \\ &= \frac{1}{2} \times 10.7 \times 8.5 \times \sin 34 \\ &= \underline{\underline{25.43 \text{ cm}^2}} \end{aligned}$$



$\left. \begin{array}{l} a \checkmark \text{ want angle } A \checkmark 48^\circ \\ b \quad \text{angle } B \checkmark 180^\circ - 48^\circ - 61^\circ \\ c \checkmark 19 \text{ cm} \quad \text{angle } C \checkmark 61^\circ \end{array} \right\}$

2 : 3

Sine Rule.

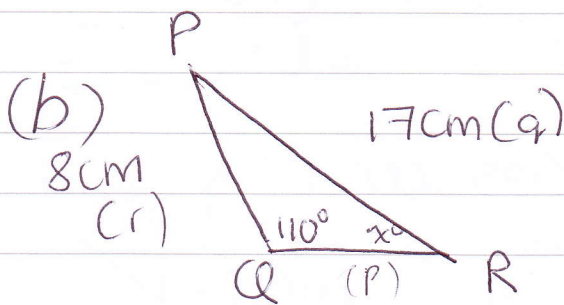
$$\frac{a}{\sin A} = \frac{c}{\sin C}$$

$$\frac{x}{\sin 48} = \frac{19}{\sin 61}$$

$$x \times \sin 61 = 19 \times \sin 48$$

$$x = \frac{19 \times \sin 48}{\sin 61}$$

$$x = \underline{\underline{16.14 \text{ cm}}}$$



$\left. \begin{array}{l} P \quad \text{angle } P \\ q \checkmark 17 \text{ cm} \quad \text{angle } Q \checkmark 110^\circ \\ r \checkmark 8 \text{ cm} \quad \text{angle } R \checkmark x^\circ \text{ want} \end{array} \right\}$

2 : 2

∴ Sine Rule.

$$\frac{q}{\sin Q} = \frac{r}{\sin R}$$

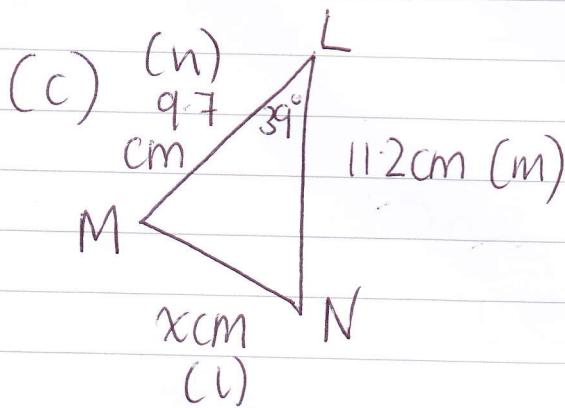
$$\frac{17}{\sin 110^\circ} \approx \frac{8}{\sin x^\circ}$$

$$17 \times \sin x = 8 \times \sin 110^\circ$$

$$\sin x = \frac{8 \times \sin 110^\circ}{17}$$

$$x = \sin^{-1}(0.442)$$

$$x = \underline{\underline{26.24^\circ}}$$



$l \checkmark$  want angle  $l \checkmark 39^\circ$   
 $m \checkmark 11.2$  angle m  
 $n \checkmark 9.7$  angle n.  
 3 : 1

∴ Cosine Rule.

$$l^2 = m^2 + n^2 - 2mn \cos l$$

$$l^2 = (11.2)^2 + (9.7)^2 - 2 \times 11.2 \times 9.7 \times \cos 39^\circ$$

$$l^2 = 219.53 - (168.86)$$

$$l^2 = 50.67 \quad l = \underline{\underline{7.12}}$$

$$l = \sqrt{50.67}$$

a  $\checkmark$  195 angle A

b  $\checkmark$  240 angle B

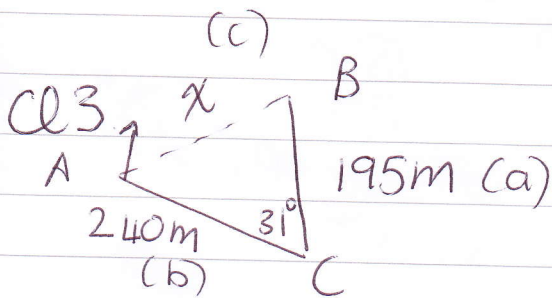
c  $\checkmark$  want angle C  $\checkmark 31^\circ$

3 : 1

∴ cosine Rule.

$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$= (195)^2 + (240)^2 - 2 \times 195 \times 240 \times \cos 31^\circ$$



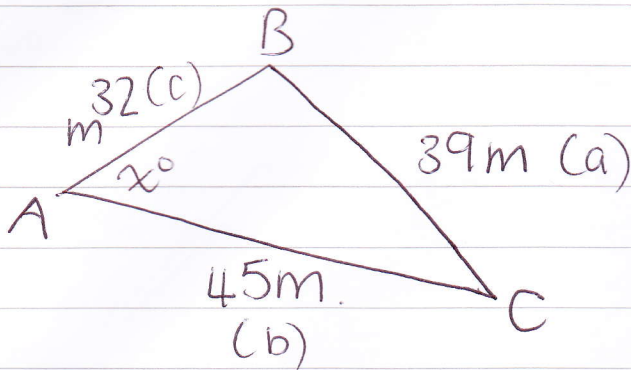
$$c^2 = 95625 - (80230.86)$$

$$c^2 = 15394.14$$

$$c = \sqrt{15394.14}$$

$$c = \underline{\underline{124.07 \text{ cm}}}$$

Q4.



a ✓ 39 angle A ✓ want

b ✓ 45 angle B

c ✓ 32 angle C.

$$3 : 1$$

∴ Cosine Rule.

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

$$\cos A = \frac{(45)^2 + (32)^2 - (39)^2}{2 \times 45 \times 32}$$

$$\cos A = \frac{1528}{2880}$$

$$\cos A = 0.531$$

$$A = \cos^{-1}(0.531)$$

$$A = \underline{\underline{57.96^\circ}}$$