3.2 Proving and Applying The Sine Law

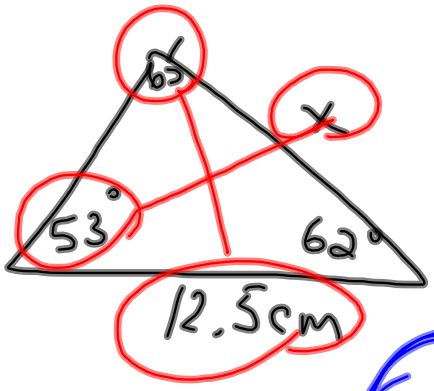
The relationship that we derived for acute ΔABC, specifically

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$ is called

the **Sine Law** (or Law of Sines)

This Law can also be written as

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



$180° - (53 + 62)$

$180° - (115)$

$65°$

$$\sin 53 \left(\frac{x}{\sin 53} \right) = \left(\frac{12.5}{\sin 65} \right) \sin 53$$

$$x = \frac{12.5 \sin 53°}{\sin 65°} = 11.0$$

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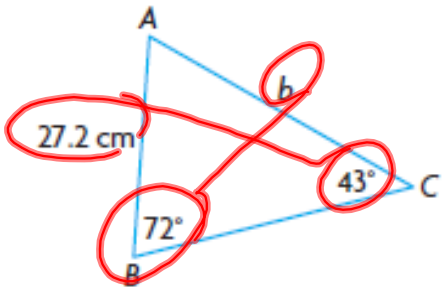
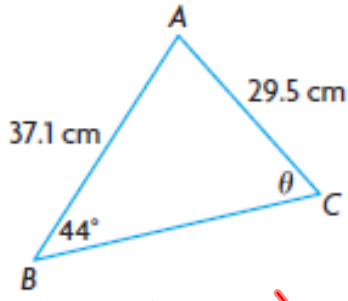
2. a) Determine length b to the nearest tenth of a centimetre.



b) Determine the measure of θ to the nearest degree.



$$\frac{b}{\sin 72} = \frac{27.2}{\sin 43} \quad \sin 72$$

$$b = \frac{27.2 \sin 72}{\sin 43^\circ}$$

$$b = 37.9$$

$$\frac{\sin\theta}{37.1} = \frac{\sin 44}{29.5} \quad 37.1$$

$$\sin\theta = \frac{37.1 \sin 44}{29.5}$$

$$\sin\theta = 0.8736$$

$$\theta = \sin^{-1}(0.8736)$$

$$\theta = 61^\circ$$

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