

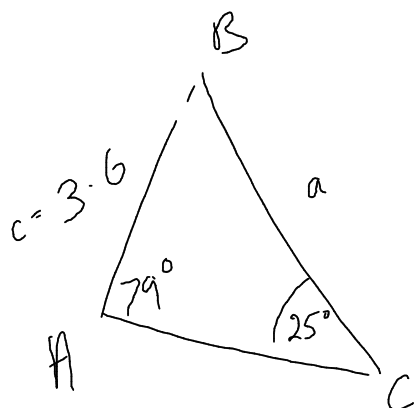
The Sine Law

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

↔ use to find sides

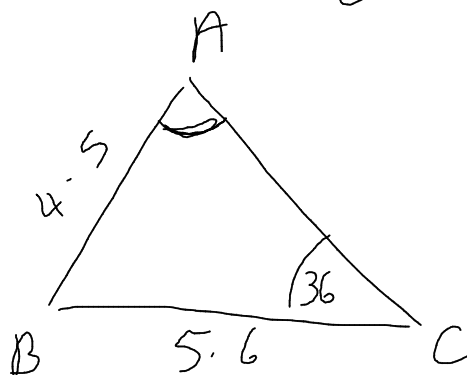
$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

↔ use to find angles.



$$\frac{a}{\sin 79} = \frac{3.6}{\sin 25}$$

$$a = \frac{3.6}{\sin 25} \times \sin 79 = 8.4$$



$$\frac{\sin A}{5.6} = \frac{\sin 36}{4.5}$$

$$\sin A = \frac{\sin 36}{4.5} \times 5.6$$

$$= 0.73$$

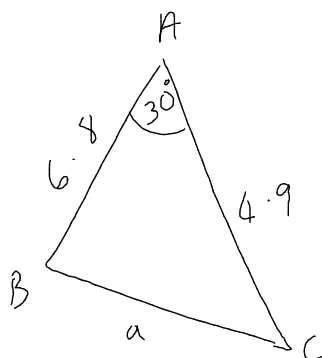
$$A = \sin^{-1}(0.73)$$

$$= 47^\circ$$

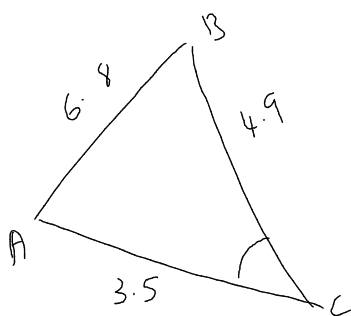
The Cosine Law

$$\begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A \\ b^2 &= a^2 + c^2 - 2ac \cos B \\ c^2 &= a^2 + b^2 - 2ab \cos C \end{aligned} \quad \left. \vphantom{\begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A \\ b^2 &= a^2 + c^2 - 2ac \cos B \\ c^2 &= a^2 + b^2 - 2ab \cos C \end{aligned}} \right\} \text{to find sides.}$$

$$\begin{aligned} \cos A &= \frac{b^2 + c^2 - a^2}{2bc} \\ \cos B &= \frac{a^2 + c^2 - b^2}{2ac} \\ \cos C &= \frac{a^2 + b^2 - c^2}{2ab} \end{aligned} \quad \left. \vphantom{\begin{aligned} \cos A &= \frac{b^2 + c^2 - a^2}{2bc} \\ \cos B &= \frac{a^2 + c^2 - b^2}{2ac} \\ \cos C &= \frac{a^2 + b^2 - c^2}{2ab} \end{aligned}} \right\} \text{Find angle.}$$



$$\begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A \\ &= 6.8^2 + 4.9^2 - 2 \times 6.8 \times 4.9 \times \cos 30 \\ &= 12.53 \\ a &= \sqrt{12.53} = 3.54 \end{aligned}$$



$$\begin{aligned} \cos C &= \frac{a^2 + b^2 - c^2}{2ab} \\ &= \frac{4.9^2 + 3.5^2 - 6.8^2}{2(4.9)(3.5)} \\ &= -0.2909 \dots \end{aligned}$$

$$\begin{aligned} C &= \cos^{-1}(-0.2909) = 106.9 \\ &= 107^\circ \end{aligned}$$