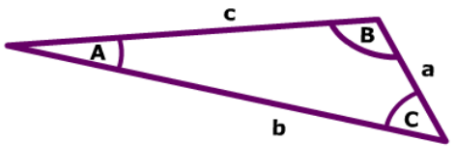
2.7: The Cosine Law

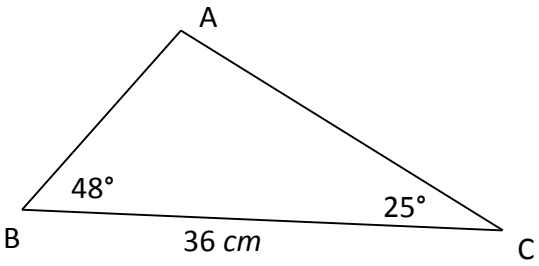
Recall: The Sine Law

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

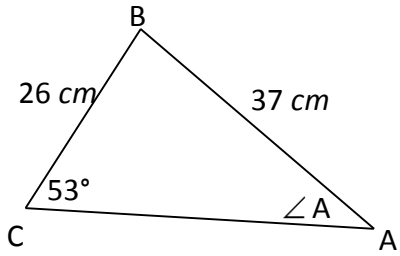


$$\frac{a}{\sin(A)} = \frac{b}{\sin(B)} = \frac{c}{\sin(C)}$$

Example 1: Find the measure of side **c** in the triangle below.

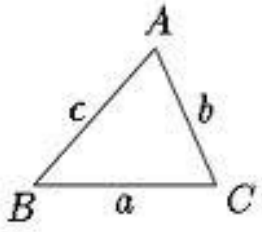


Example 2: Find the measure of angle A in the triangle below.



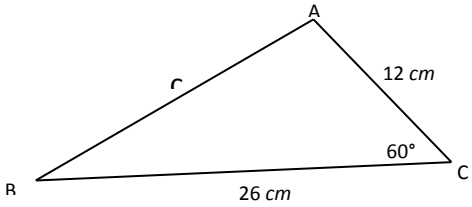
MCF3MI: UNIT 2 – Trigonometry

New Today : **The Cosine Law**

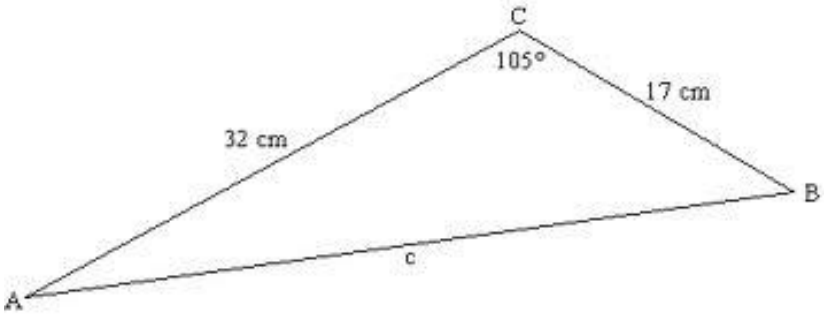


$$a^2 = b^2 + c^2 - 2bc\cos A$$
$$b^2 = c^2 + a^2 - 2ca\cos B$$
$$c^2 = a^2 + b^2 - 2ab\cos C$$

Example 1: Can you use SOH CAH TOA to solve for c? Why not?
Can you use Sine Law to solve for c? Why not?



Now you try: Solve for c.



Example 2: In ΔABC, given $a = 7$ cm, $b = 8$ cm and $c = 10$ cm. Find the measure of $\angle A$ to the nearest degree.

Now you try: In ΔABC, given $a = 18$ m, $b = 22$ m and $c = 30$ m. Find the measure of $\angle C$ to the nearest degree.