

Lesson 1 Sine Law

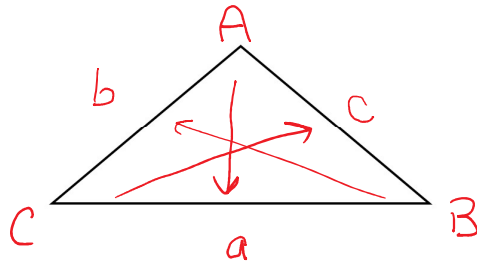


Lesson 1 Sine Law

Lesson 1 Sine Law – Determining A Side Length

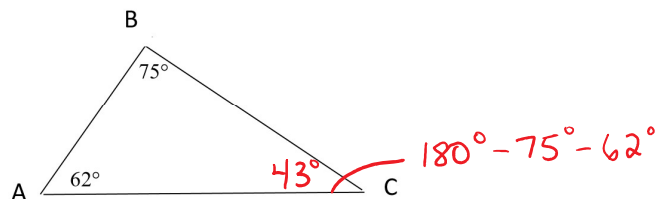
Recall:

Labelling a Triangle



There are 180° in a triangle.

Ex. Determine the measure of angle C.



Recall: Using a Calculator \rightarrow degrees mode

Evaluate each trigonometric ratio, correct to 4 decimal places.

a.) $\sin 73^\circ$

0.9563

b.) $\cos 38^\circ$

0.7880

Evaluate, to determine the measure of the missing angle.

a.) $\sin A = 0.3217$

$A = \sin^{-1}(0.3217)$

$A = 18.77^\circ$

b.) $\cos B = 0.7815$

$B = \cos^{-1}(0.7815)$

$B = 38.6^\circ$

2nd $\sin 0.3217 =$

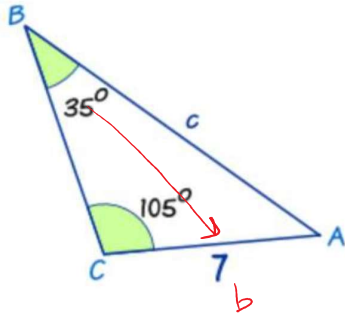
Sine Law

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

Sine Law is used when we are given or can get a matching pair
(ie. side a and angle A, across from a)

Example 1

Determine the length of side c.



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

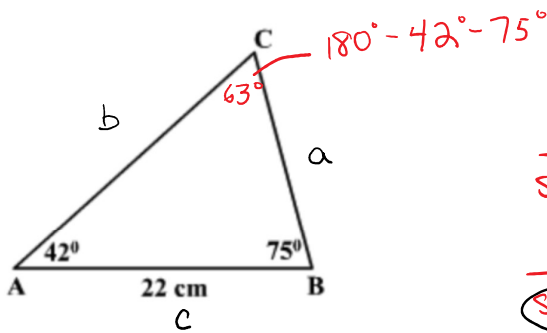
$$\frac{7}{\sin 35^\circ} = \frac{c}{\sin 105^\circ}$$

$$\frac{7 \sin 105^\circ}{\sin 35^\circ} = c$$

$$11.8 = c$$

Example 2

Determine the length of side a.



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

$$\frac{a}{\sin 42^\circ} = \frac{22}{\sin 63^\circ}$$

$$\frac{22 \sin 42^\circ}{\sin 63^\circ} = a$$

$$16.5 \text{ cm} = a$$

Ans

a) 29.92°

b) 37.61°

c) 14.90cm

a = ?
A = 42°
B = 75°

c = 22
C = 63°