

### Answer on Question #59186-Physics-Other

Solve triangle ABC angle C= 125°43' a=4.2cm and c =8.2cm. Find b

#### Solution

Using Sine law:

$$\frac{\sin A}{a} = \frac{\sin C}{c} \rightarrow A = \sin^{-1}\left(a \frac{\sin C}{c}\right) = \sin^{-1}\left(4.2 \frac{\sin 125^{\circ}43'}{8.2}\right) = 24^{\circ}34'$$

$$B = 180^{\circ} - (125^{\circ}43' + 24^{\circ}34') = 29^{\circ}43'$$

Using Sine law:

$$\frac{\sin B}{b} = \frac{\sin C}{c} \rightarrow b = c \frac{\sin B}{\sin C} = 8.2 \frac{\sin 29^{\circ}43'}{\sin 125^{\circ}43'} = 5.0 \text{ cm.}$$