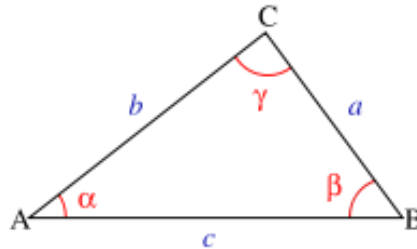


## Answer on Question #51012 – Math – Trigonometry

### Task

Solve triangle ABC which have angle  $C=125^\circ$ ;  $a=4\text{cm}$  and  $c=8\text{cm}$ . Find  $b$ .

### Solution



According to the Sine Rule,

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \Rightarrow \frac{a}{\sin A} = \frac{c}{\sin C} \Rightarrow \sin A = \frac{a \sin C}{c} = \frac{4 \sin(125^\circ)}{8} = \frac{\sin(125^\circ)}{2} \Rightarrow$$

$$A = \arcsin \frac{\sin(125^\circ)}{2} \approx 24.2^\circ$$

$$A + B + C = 180^\circ \Rightarrow B = 180^\circ - A - C = 30.8^\circ$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} \Rightarrow b = \frac{a \sin B}{\sin A} = \frac{4 \sin(30.8^\circ)}{\sin(125^\circ)} \approx 2.5\text{cm}$$

**Answer:  $b=2.5\text{ cm}$**