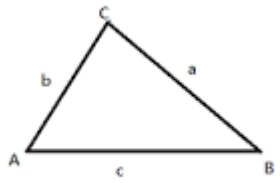
# Answer on Question #58987 – Math – Trigonometry

## Question

Solve triangle ABC which has angle=25.25, angle B=60.51 and a=3.82. Find c

## Solution




It is not known which of angles A or C has the measure of $25.25^\circ$.

If $\angle A = 25.25^\circ$, then $\angle C = 180^\circ - \angle A - \angle B = 180^\circ - 25.25^\circ - 60.51^\circ = 94.24^\circ$ and using the theorem of sines

$\frac{a}{\sin\angle A} = \frac{c}{\sin\angle C}$, hence $c = a\frac{\sin\angle C}{\sin\angle A} = 3.82\frac{sin(94.24^\circ)}{\sin(25.25^\circ)} = 3.82\frac{0.9972631}{0.426569} \approx 8.93.$

If $\angle C = 25.25^\circ$, then $\angle A = 180^\circ - \angle B - \angle C = 180^\circ - 60.51^\circ - 25.25^\circ = 94.24^\circ$ using the theorem of sines

$\frac{a}{\sin\angle A} = \frac{c}{\sin\angle C}$, hence $c = a\frac{\sin\angle C}{\sin\angle A} = 3.82\frac{sin(25.25^\circ)}{\sin(94.24^\circ)} = 3.82\frac{0.426569}{0.9972631} \approx 1.63.$