

Answer on Question #61186 – Math – Trigonometry

Question

1. Solve triangle ABC which have angle $A=250.251$, angle $B=600.511$ and $a=3.82$. Find c.
3.6cm
7.0cm
7.4cm
8.8cm
2. Solve triangle ABC which have angle $A=250.251$, angle $B=600.511$ and $a=3.82$. Find b.
5.0cm
7.8cm
7.1cm
6.7cm

Solution

The values you've given for A and B are unrealistic, because the sum of angles of triangle should be 180° (but only angle $A=250.251^\circ > 180^\circ$).

But if there is a typo in the task and the real values of angles are $A=25^\circ 25'$, $B=60^\circ 51'$, then the problem can be solved by using law of sines:

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

So

1. Given $A = 25^\circ 25'$, $B=60^\circ 51'$, $a=3.82$. Then $C=180^\circ - A - B = 180^\circ - 25^\circ 25' - 60^\circ 51' = 93^\circ 44'$
$$c = \frac{a \cdot \sin C}{\sin A} = \frac{3.82 \cdot \sin(93^\circ 44')}{\sin(25^\circ 25')} = 8.88 \approx 8.9.$$
2. Given $A = 25^\circ 25'$, $B=60^\circ 51'$, $a=3.82$. Then $C=180^\circ - A - B = 180^\circ - 25^\circ 25' - 60^\circ 51' = 93^\circ 44'$
$$b = \frac{a \cdot \sin B}{\sin A} = \frac{3.82 \cdot \sin(60^\circ 51')}{\sin(25^\circ 25')} = 7.77 \approx 7.8.$$

Answer: 1. 8.9.

2. 7.8.