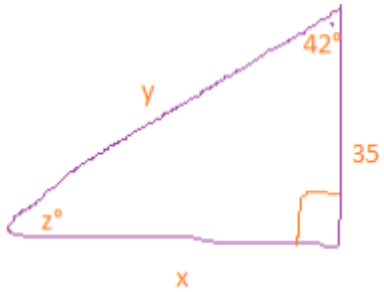


Answer on Question #58327 – Math – Trigonometry

Question

1. Fill in the blank. In the triangle below, $z^\circ =$



Solution

The first angle equals 42° , the next angle is 90° , and the third angle equals z° .

The sum of interior angles of any triangle is equal to 180° :

$$42^\circ + 90^\circ + z^\circ = 180^\circ,$$

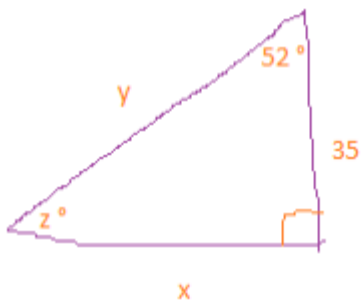
hence

$$z^\circ = 180^\circ - 42^\circ - 90^\circ = 180^\circ - 132^\circ = 48^\circ.$$

ANSWER: $z^\circ = 48^\circ$.

Question

2. Fill in the blank. In the triangle below, $x =$ _____. Round your answer to two decimal places.



Solution

First of all, let's find z° , and then we can use a value of $\tan(z^\circ)$ to obtain x .

$$z^\circ = 180^\circ - 52^\circ - 90^\circ = 38^\circ,$$

$$\tan(38^\circ) = \frac{35}{x},$$

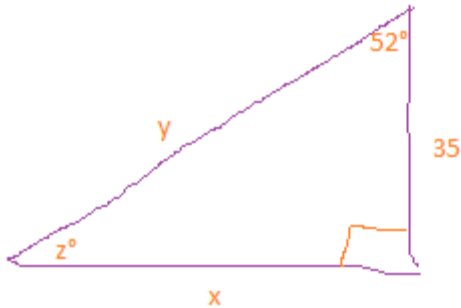
hence

$$x = \frac{35}{\tan(38^\circ)} = \frac{35}{0.7812856265} \approx 44.80.$$

ANSWER: $x \approx 44.80$

Question

3. Fill in the blank. In the triangle below, $y = \underline{\hspace{2cm}}$. Round your answer to two decimal places.



Solution

In part 2 we have already found $z^\circ = 38^\circ$ and $x = 44.80$.

Now, in order to calculate the value of y , we shall use the Pythagorean theorem ($a^2 + b^2 = c^2$):

$$y^2 = x^2 + 35^2 = 44.80^2 + 35^2,$$

hence

$$y = \sqrt{44.80^2 + 35^2}.$$

ANSWER: $y \approx 56.85$.