

Answer on Question # 31985 – Math – Geometry

Given triangle ABC and side a = 20; side b = 21. Find the measurement of angle A if angle B is a right angle.

Solution.

As ABC is a right triangle we can write that

$$\sin(A) = \frac{a}{b} \rightarrow \sin(A) = \frac{20}{21}$$

Take the inverse sine of both sides:

$$A = \pi - \sin^{-1}\left(\frac{20}{21}\right) + 2\pi n_1, \quad n_1 \in Z$$

or

$$A = \sin^{-1}\left(\frac{20}{21}\right) + 2\pi n_2 \quad \text{for } n_2 \in Z.$$

So

$$A \approx 57.296(6.283n + 1.88) \text{ and } n \in Z \quad (1)$$

$$A \approx 57.296(6.283n + 1.26) \text{ and } n \in Z \quad (2)$$

As, angle A is in the right triangle ABC we have that angle(A)+angle(C)=90deg. Thus, we need to chose (2) with n=0, because in (1) we obtain that angle(A)>100deg.

$$A \approx 57.296 * 1.26 = 72.193$$