ASSIGNMENT-3

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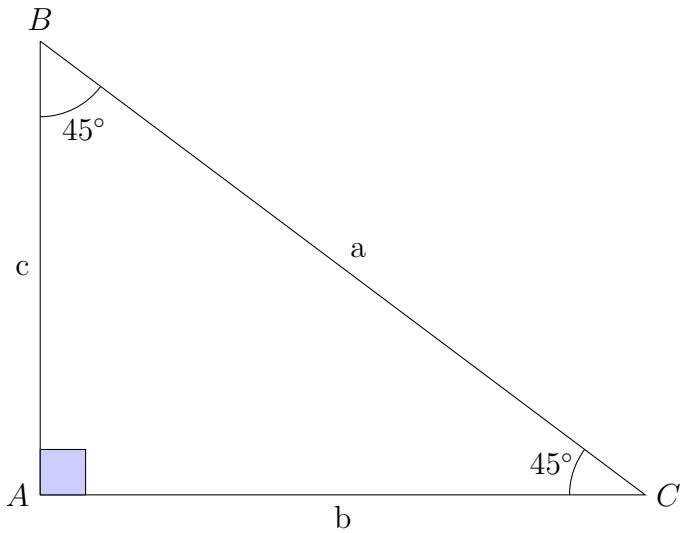
January 15, 2021

1 Question:-

In ΔABC, given that a+b+c = 11, $\angle$B = 45° and $\angle$C = 45° , find a, b, c and sketch the triangle.

2 Solution:-



Given,

$$a + b + c = 11 \tag{1}$$

We know that,
tan(ACB)=$\frac{c}{b}$
tan(45°)=$\frac{c}{b}$

$$c = b \tag{2}$$

Now, a^2=c^2+b^2 (Pythagoras Theorem)
Using eq 2)

$2b^2$=a^2

(3)

Also, eq 1) becomes

$$a = 11 - 2b \tag{4}$$

Therefore, eq 3) becomes
$2b^2$=$(11 - 2b)^2$
$2b^2$-44b+121=0
b=3.22,b≠18.78
a=11-2*3.22=4.56

a=4.56 , c=3.22 , b=3.22

2.1 Steps of Construction:-

- Draw a line BC of length b=4.5.
- Taking B as centre draw an arc at the distance of as c=3.25.
- Taking C as centre draw an arc at the distance of as a=3.25.
- Name the point where the two arcs meet as A.
- Join AB and AC.
- Join AB and AC.

2.2 Figure:-