# ASSIGNMENT-3

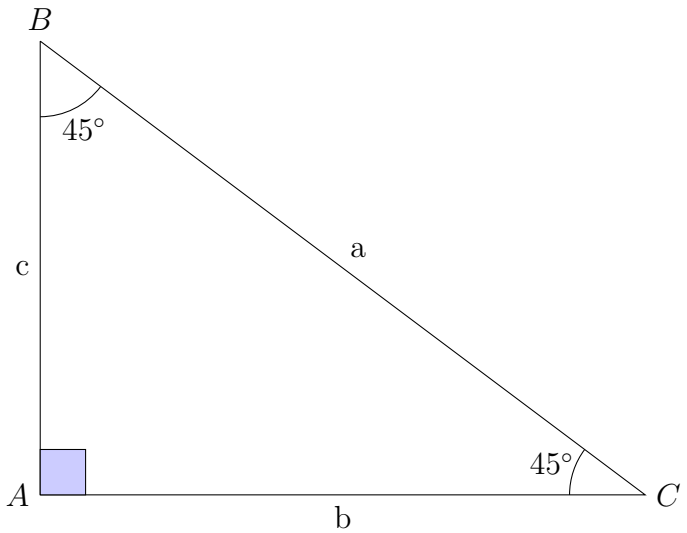
SENANI SADHU

January 15, 2021

## 1 Question:-

**In $\Delta$ABC, 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 a=4.56.
- Taking B as centre draw an arc at the distance of as c=3.22.
- Taking C as centre draw an arc at the distance of as b=3.22.
- Name the point where the two arcs meet as A.
- Join AB and AC.
- Join AB and AC.

## 2.2 Figure:-