ASSIGNMENT-3

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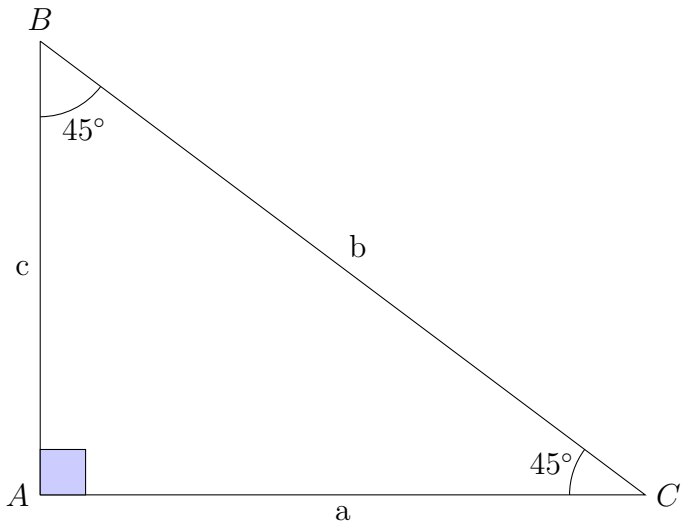
1 Question:-

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)=$\frac{c}{a}$
tan(45°)=$\frac{c}{a}$

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

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

$2a^2=b^2$

(3)

Also, eq 1) becomes

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

Therefore, eq 3) becomes
$2a^2=(11-2a)^2$
$2a^2$-44a+121=0
a=3.25,a≠18.5
b=11-2*3.25=4.5

a=3.25 , c=3.25 , b=4.5

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:-