3.2.28 Matgeo

AI25BTECH11012 - Garige Unnathi

Question

Find if a triangle ABC can be constructed in which **B - A** = 5cm, $\angle$**A** = 45° and **(C - B)**+**(C - A)**= 5cm.

Given

Given that :

$$\mathbf{B} - \mathbf{A} = c \quad (\mathbf{C} - \mathbf{B}) = a \quad (\mathbf{C} - \mathbf{A}) = b$$

$$a + b = 5cm$$

$$c = 5cm$$

Solution

Using the triangle inequality, for any triangle ABC :

$$\mathbf{B} - \mathbf{A} < (\mathbf{C} - \mathbf{B}) + (\mathbf{C} - \mathbf{A}). \tag{1}$$

$$c < a + b \tag{2}$$

Which is not true.
Hence we cannot form a triangle with the given conditions.