CBSE CLASS 9

CHAPTER 7 : EXERCISE 1.8

1. In right triangle **ABC**, right angled at $\mathbf{C}, \mathbf{M}$ is the mid-point of hypotenuse **AB**. **C** is joined to **M** and produced to a point **D** such that $\mathbf{DM} = \mathbf{CM}$. Point **D** is joined to point **B** see Fig. 1. Show that:

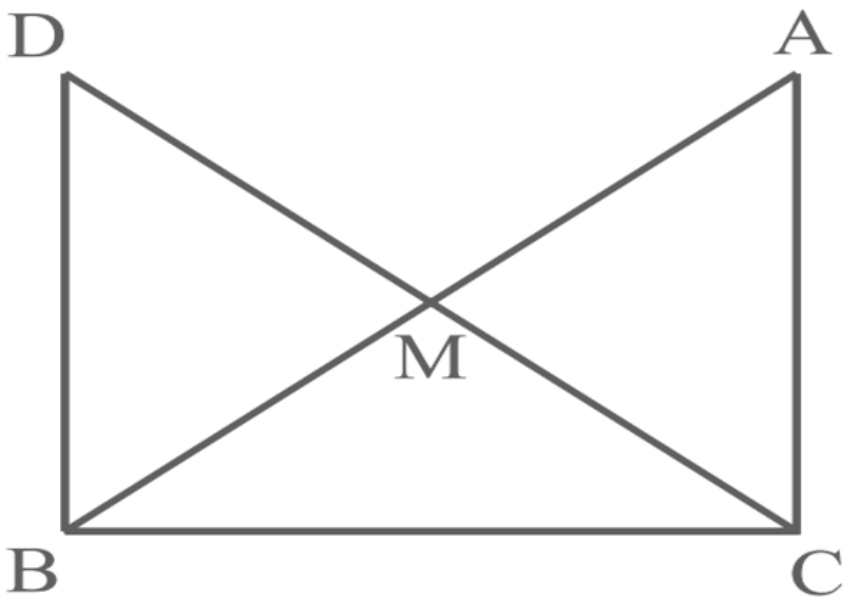

Figure 1: $\triangle\mathbf{ACB}, \triangle\mathbf{DCB}$ with Mid-Point **M**

(i) $\triangle\mathbf{AMC} \cong \triangle\mathbf{BMD}$

(ii) $\angle\mathbf{DBC}$ is a right angle.

(iii) $\triangle\mathbf{DBC} \cong \triangle\mathbf{ACB}$

(iv) $\mathbf{CM} = \frac{1}{2}\mathbf{AB}$

Solution:

CONSTRUCTION STEPS :

(a) Let us Assume , the input parameters as ;

Parameter	Value	Description
B	$\begin{pmatrix}0\\0\end{pmatrix}$	Reference point at Origin
C	$\begin{pmatrix}6\\0\end{pmatrix}$	point **C** on the same axis of **B**
l	6	Length of side **BC**

Table 1: Input Parameters

(b) the output can be calculated as ;

Parameter	Value	Description
D	$\begin{pmatrix}0\\l\end{pmatrix}$	$x = 0$, $y = l$ i.e x, y are co-ordinates of axes in XY-plane
A	$\begin{pmatrix}l\\l\end{pmatrix}$	$x = l$, $y = l$
M	$\left(\frac{\mathbf{A+B}}{2}\right)$	Mid-point of **AB**

Table 2: Output Parameters

$\therefore$ By, Plotting these points we get the required Image Fig. **??**

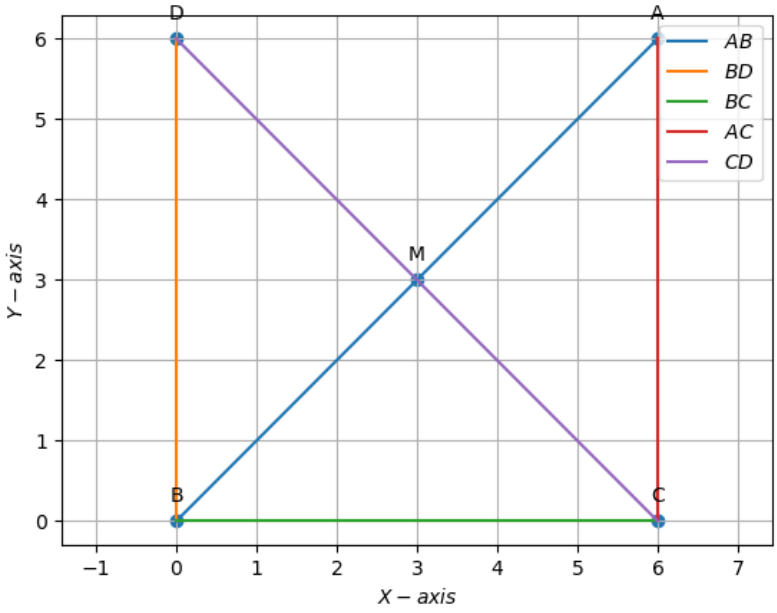

Figure 2: PYTHON Plot of $\triangle$**ACB**, $\triangle$**DCB** with Mid-Point **M**