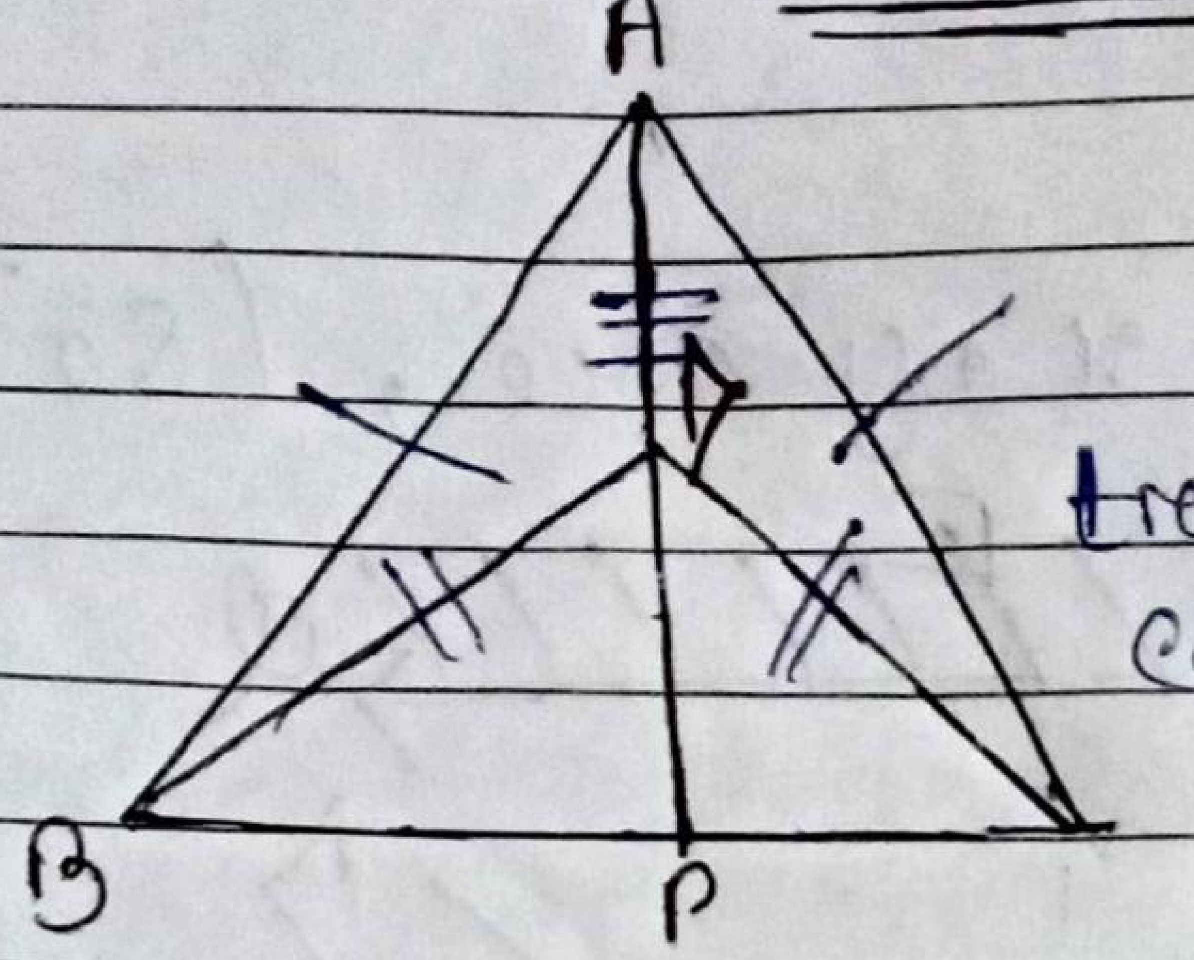
C.W
07/7/21

Worksheet - 2

1)



In ΔABC, it is an isosceles triangle. Opposite sides are equal.

In ΔBDC, it is an isosceles triangle. opposite sides are equal.

AB = AC (isosceles triangle property) Side
BD = CD (isosceles triangle property) Side
AD = AD (common) Side

$\therefore$ Hence $\Delta ABD \cong \Delta ACD$ (S.S.S)

(ii) To prove $\Delta ABP \cong \Delta ACP$

AB = AC (proved) S
$\angle BAP = \angle CAP$ (common) A
AP = AP (common) S

$\therefore$ Hence $\Delta ABP \cong \Delta ACP$ (SAS)

(iii) $\because \triangle ADB \cong \triangle ADC$ (From part (i))

$\angle ADB = \angle ADC$ (CPCT)

$180° - \angle ADB = 180° - \angle ADC$

Also from part (ii) $\angle BAP = \angle CAP$ (CPCT)

$\therefore$ AP bisects $\angle A$ as well as $\angle D$

(iv) Now BP = CP

$\angle BPA = \angle CPA$ (CPCT)

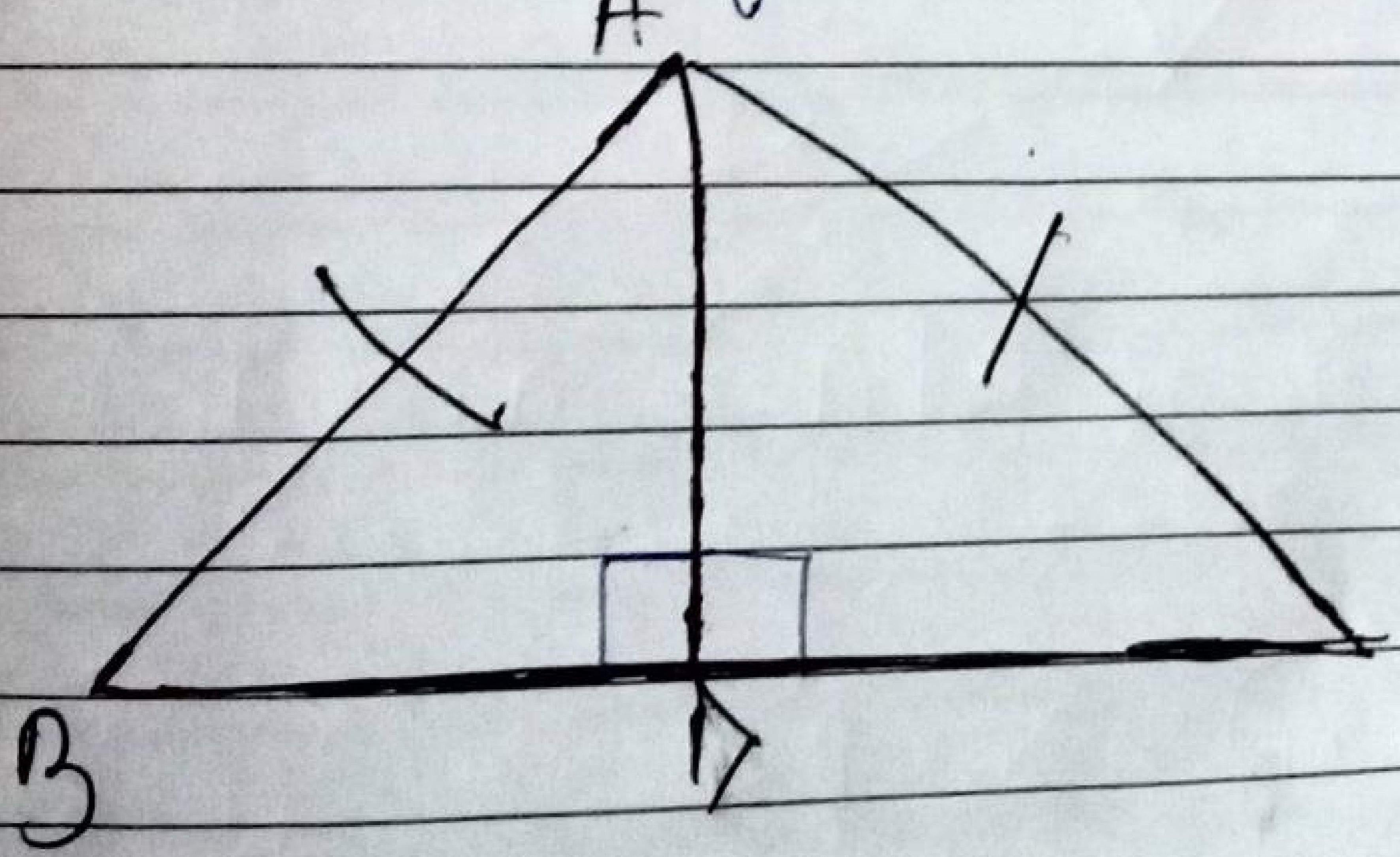
$\angle BPA + \angle CPA = 180°$ (Linear pair)

So $2\angle BPA = 180°$

$\angle BPA = \frac{180°}{2}$ $90°$

$\therefore$ Since BP = CP & AP is the perpendicular bisector of BC proved.

2)



$\angle ADB = \angle ADC$ [$90°$]

AB = AC (Given)

AD = AD (common)

$\therefore$ Hence $\triangle ADB \cong \triangle ADC$ (RHS)

(i) In $\triangle ABD$ & $\triangle ACD$

BD = CD (C.P.C.T)

(ii) As $\Delta AMB \cong \Delta AMC$ (proved)

$\angle BAM = \angle MAC$ (C.P.C.T)

$\therefore$ Hence AM bisects $\angle A$ (proved)