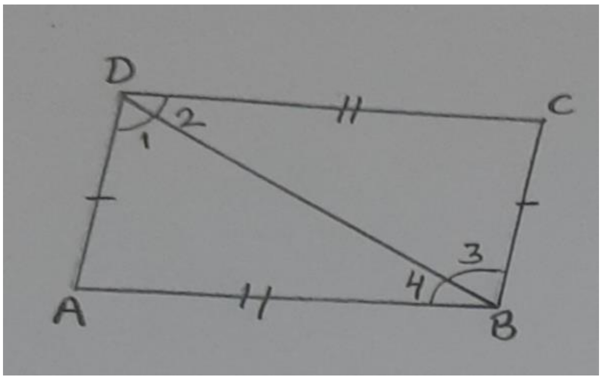
EXERCISE – 15B

Q-3. In the given figure .... Congruent parts .

Sol :



Given that = AD = BC and AB = CD

To prove = $\triangle$ ABD $\cong$ $\triangle$ CDB

Proof : AD = BC (Given)

AB = CD (Given)

BD = BD (common)

Hence By SSS

$\triangle$ ABD $\cong$ $\triangle$ CDB

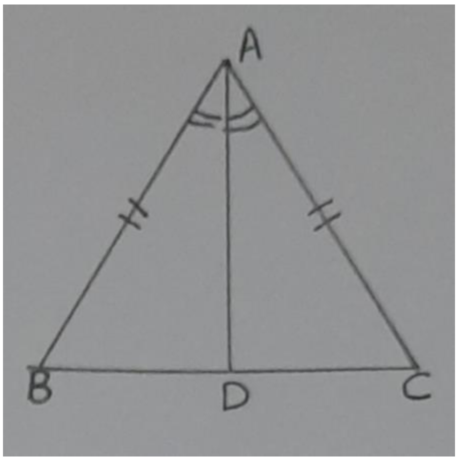
Congruent parts :

AB $\cong$ CD , AD $\cong$ CB and BD $\cong$ BD

$\angle 1 = \angle 3$, $\angle 2 = \angle 4$ And $\angle A = \angle C$

Q-4. ABC is an isosceles ------------- BD?

Sol :



Sol **: a. Given : AB = AC and AD is the bisector of angle A.**

To prove : △ ABD ≅ = △ ACD

Proof : AB = AC (Given)

angle BAD = angle CAD (AD is the bisector of angle A)

AD = AD (common)

Hence by SAS

△ ABD ≅ △ ACD

b. Is ∠ADB = 90^0

Proof :

∠ADB + ∠ADC = 180^0 (Linear pair)

∠ADB + ∠ADB = 180^0 (By CPCT ∠ADB = ∠ADC)

2 ∠ADB = 180^0

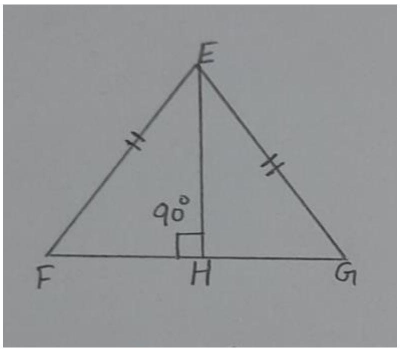
∠ADB = 180^0 / 2 = 90^0

c. Is D the mid point of BC ?

Sol : BD = DC (By CPCT)

Hence D is the mid part of BC.

Q- 5.△ EFG is isosceles . EF = EG and EH = FG and EH FG . Prove that angle F= angle G.



Sol : Given : EF = EG

EH ⊥ FG

To prove : angle F = angle G

Proof ; EF = EG (Given)

EH = EH (Common)

∠EHF = ∠EHG = 90^0 (EH is perpendicular to FG)

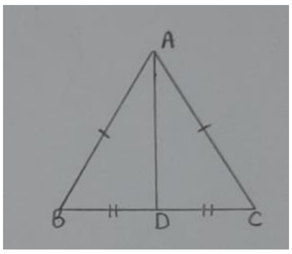
So by RHS

△ EHF ≅ △ EHG

⇨ ∠F = ∠G (By CPCT)

Hence proved .

Q-6. In the given figure ---------- Prove that –



a. △ ABD ≅ △ ACD

Sol : a. Given : AB = AC and BD = DC

To prove : △ ABD ≅ △ ACD

Proof : AB = AC (Given)

BD = DC (Given)

AD = AD (common)

Hence by SSS

$\triangle$ ABD ≅ $\triangle$ ACD

b. . ∠ADB = ∠ ADC = 90^0

Proof : ∠ADB +∠ ADC = 180^0 (Linear pair)

∠ADB + ∠ADB = 180^0 (By CPCT ∠ADB = ∠ ADC)

2∠ ADB = 180^0

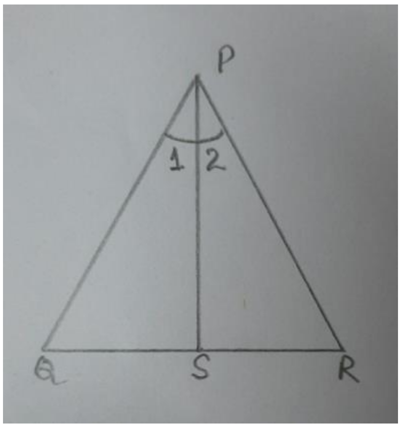
∠ADB = 180^0 / 2 = 90^0

Hence angle ADB = angle ADC = 90^0

c. angle B = angle C (By CPCT)

d. angle BAD = angle CAD (By CPCT)

Q-7. In triangle PQR -------- Prove that PQ = PR



Sol : . Given : PS is the bisector of angle P so ∠1 = ∠2

To prove : PQ = PR

Proof : ∠1 =∠2 (PS is the bisector of angle P)

angle PSQ = angle PSR = 90^0 (PS is perpendicular to QR)

PS = PS (common)

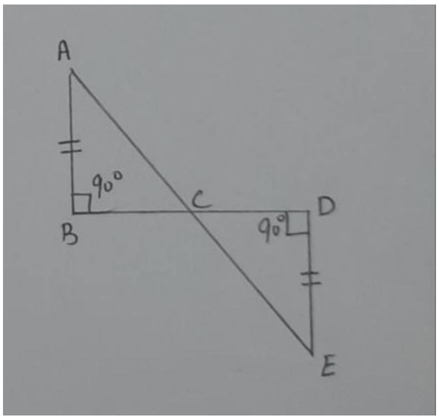
Hence by ASA

$\triangle$ PQS ≅ $\triangle$ PRS

⇨ PQ = PR

Hence proved

Q-8. In the given figure -------- Prove that CD = BC



Sol : Given : angle B = angle D = 90^0

AB = DE

To prove = CD = BC

Proof : angle B = angle D = 90^0 (Given)

AB = DE (Given)

Angle ACB = angle ECD (vertically opposite angle)

By ASA

△ ABC ≅ △ EDC

⇨ BC = CD (By CPCT)

Hence proved .