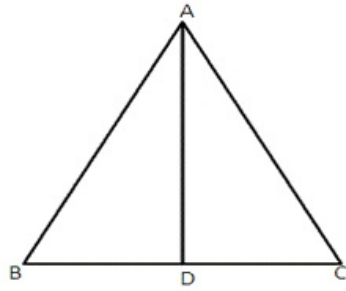




### Exercise 5A

Question 24:

Given :  $\triangle ABC$  is an isosceles triangle in which  $AB = AC$  and  $AD$  is the median through  $A$ .



To prove:  $\angle BAD = \angle DAC$

Proof: In  $\triangle ABD$  and  $\triangle ADC$

$$AB = AC \quad [\text{Given}]$$

$$BD = DC \quad [\text{Given}]$$

$$AD = AD \quad [\text{Common}]$$

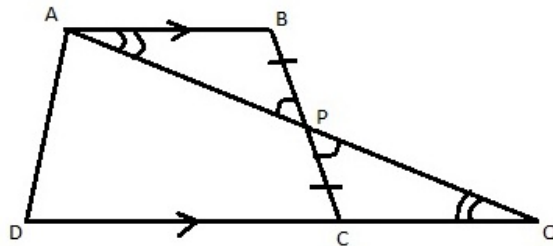
Thus by Side-Side-Side criterion of congruence, we have

$$\triangle ABD \cong \triangle ADC \quad [\text{By SSS}]$$

The corresponding parts of the congruent triangles are equal.

$$\therefore \angle BAD = \angle DAC \quad (\text{Proved})$$

Question 25:



Given  $ABCD$  is a quadrilateral in which  $AB \parallel DC$

To Prove: (i)  $AB = CQ$

(ii)  $DQ = DC + AB$

Proof: In  $\triangle ABP$  and  $\triangle PCQ$  we have

$$\angle PAB = \angle PQC \quad [\text{alternate angles}]$$

$$\angle APB = \angle CPQ \quad [\text{Vertically opposite angles}]$$

$$BP = PC \quad [\text{Given}]$$

Thus by Angle-Angle-Side criterion of congruence, we have

$$\triangle ABP \cong \triangle PCQ$$

The corresponding parts of the congruent triangles are equal

$$\therefore AB = CQ \quad \dots(1)$$

$$\begin{aligned} \text{Now, } DQ &= DC + CQ \\ &= DC + AB \quad [\text{from (1)}] \end{aligned}$$

\*\*\*\*\*END\*\*\*\*\*