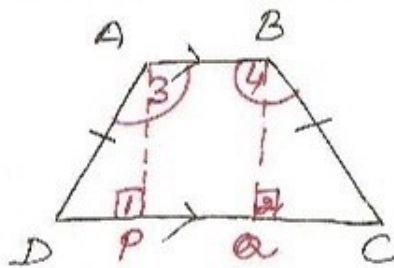
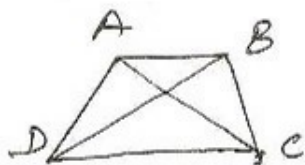


(2)



const - draw $AP \perp DC$, $BQ \perp DC$

Proof - (i) In $\triangle DPA$ and $\triangle CQB$

$$\angle 1 = \angle 2 = 90^\circ$$

$$AD = BC \text{ (given)}$$

$$AP = BQ \text{ (distance between parallel lines)}$$

$\therefore \triangle DPA \cong \triangle CQB$ by RHS prop

$$LD = LC \text{ (c.p.c.t.)}$$

(ii)

$$AB \parallel DC$$

$$\angle D + \angle 3 = 180^\circ \dots \textcircled{i}$$

$$\angle C + \angle 4 = 180^\circ \dots \textcircled{ii}$$

From (i), (ii)

$$\cancel{\angle D} + \angle 3 = \cancel{\angle C} + \angle 4 \quad [\because LD = LC]$$

$$\Rightarrow \angle A = \angle B$$

(iii) In $\triangle ABC$ and $\triangle BAD$

$$AB = BA \text{ (common)}$$

$$\angle 3 = \angle 4 \text{ (proved)}$$

$$BC = AD \text{ (given)}$$

$\therefore \triangle ABC \cong \triangle BAD$ by SAS prop.

(iv)

$$AC = BD \text{ (c.p.c.t.)}$$