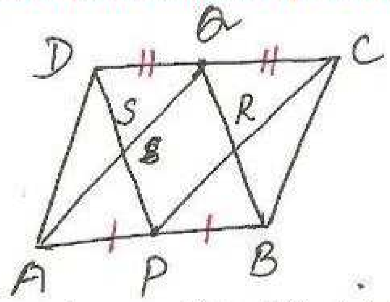
ex 8·4, exemplar IX

(7)



to show PQRS is a ||gm

proof DC || AB (opp sides of ||gm)

⇒ AP || QC

DC = AB (do)

$\frac{1}{2}$ DC = $\frac{1}{2}$ AB

⇒ QC = AP [P is midpt of AB, Q is midpt of DC]

□ APCQ is a ||gm [∵ AP || QC, AP = QC]

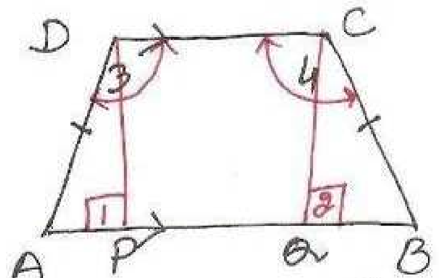
∴ AQ || PC (opp. sides of a ||gm)

⇒ SQ || PR

Similarly SP || QR

∴ □ PRQS is a ||gm

(8)



to prove ∠A = ∠B

∠C = ∠D

const DP ⊥ AB, CQ ⊥ AB

proof In △APD and △BQC

∠1 = ∠2 = 90°

AD = BC (given)

DP = CQ (distance between || lines)

△APD ≅ △BQC by RHS prop

∠A = ∠B (cpct)

DC || AB

∠A + ∠3 = 180° ...(i) (co in ∠s)

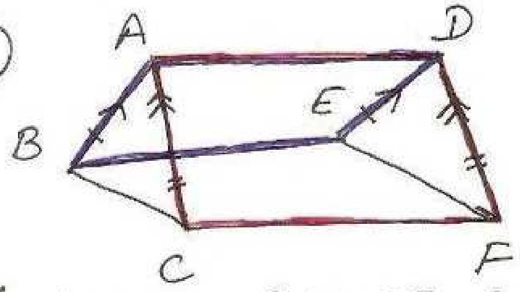
∠B + ∠4 = 180° ...(ii) (do)

From (i) and (ii)

$\cancel{\angle A}$ + ∠3 = $\cancel{\angle B}$ + ∠4 [∵ ∠A = ∠B]

⇒ ∠C = ∠D

(9)



to prove BC || EF, BC = EF

proof AC || DF

AC = DF

∴ □ ACFD is a ||gm

AD || CF...(i) (opp sides of ||gm)

AD = CF...(ii)

AB || DE

AB = DE.

∴ □ ABED is a ||gm

AD || BE ...(iii) (opp Sides of ||gm)

AD = BE...(iv)

From (i), (iii)
CF || BE

From (ii) and (iv)
CF = BE

∴ □ BCFE is a ||gm

BC || EF (opp. sides of a ||gm)

BC = EF

NCERT Exemplar Solutions by Dev Anoop (Bathinda)