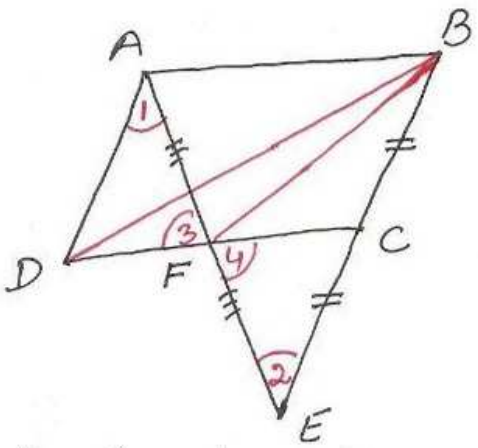
(7)



to find ar (11gm ABCD)

Sol AD = BC (opp sides of 11gm)

but BC = CE (given)

∴ AD = CE

In △AFD and △EFC

$\angle 3 = \angle 4$ (ver. opp ∠s)

$\angle 1 = \angle 2$ (al. in ∠s, AD ∥ BE)

AD = CE (proved)

∴ △AFD ≅ △EFC by AAS Cor.

DF = CF (cpct)

BF is median to side DC of △BDC

∴ ar (△BCD) = 2 ar (△DFB) [Median divides a △ into 2 △s equal in area]

= 2 × 3

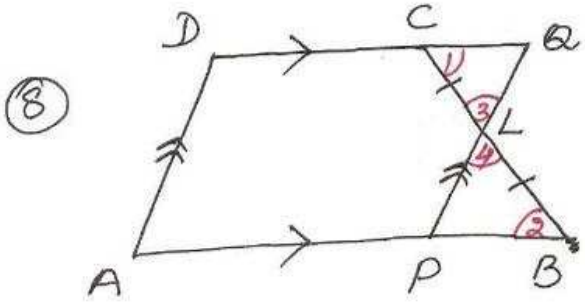
= 6 cm²

ar 11gm ABCD = 2 ar (△BCD) [∵ diagonal divides a △ into 2 △s equal in area]

= 2 × 6

= 12 cm²

(8)



to prove

ar (ABCD) = ar (APQD)

proof DQ ∥ AB

⇒ ∠1 = ∠2 (alter. in. ∠s)

In △CLQ and △BLP

$\angle 3 = \angle 4$ (ver. opp. ∠s)

CL = BL (given)

∠1 = ∠2 (proved)

∴ △CLQ ≅ △BLP by ASA prop.

⇒ ar (△CLQ) = ar (△BLP)

adding ar (APLCD) on both sides

ar (CLQ) + ar (APLCD)

= ar (BLP) + ar (APLCD)

⇒ ar (APQD) = ar (ABCD)

NCERT Exemplar Sols by Dev Anoop (Bathinda)