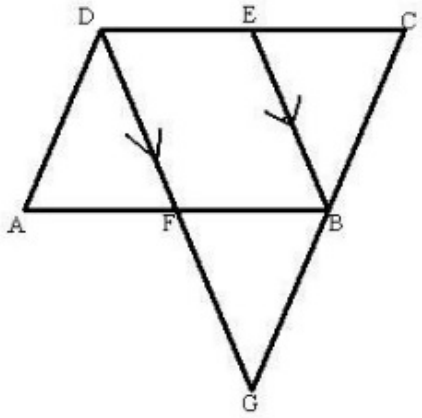
Exercise 9C

Question 6:

Given : ABCD is a paralleogram in whichE is the mid point of DC.



Through D, a line isdrwan parallel to EB meeting AB atF andBC produced at G.

To Prove :(i) $AD = \frac{1}{2}GC$

(ii) $DG = 2EB$

Proof : (i) InΔCDG,

$EB \parallel DG$ and E is the mid – point of CD.

The line drawn through the midpoint of one side of a triangle, parallel to another side, intersects the third side at its midpoint.

So, by Mid – point Theorem , B is the mid – point of CG.

$\therefore$ CB =BG

As, ABCD is a parallelogram,

So, $AD = BC$

$\Rightarrow$ $BG = CB$

$\Rightarrow$ $AD = BG = \frac{1}{2}CG$

(ii)Midpoint Theorem: The line segment joining the midpoints of any two sides of a triangle is parallel to the third side and equal to half of it.

Since E is the mid point of DC and B is the mid pointOf CG

$\therefore$ By Mid point Theorem, inΔCDG

$EB = \frac{1}{2}DG$

$\Rightarrow$ $DG = 2EB$

********** END **********