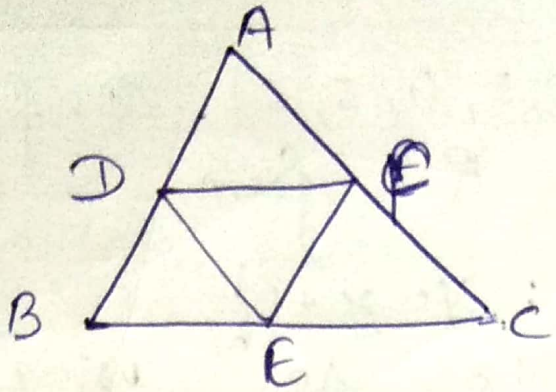
06/09/XX Class-IX (MATHS) K. Kanhaiya

1)



In ΔABC, D, E, F are respectively the mid-points of sides AB, BC and CA. Show that ΔABC is divided into four Congruent triangles by joining D, E and F.

Ans⇒ As D and E are mid are mid-points of sides AB and BC of triangle ABC,

$DE \parallel AC$, By $DF \parallel BC$ and $EF \parallel AB$

∴ ADEF, BDFE and DFCE are all parallelogram.

Now, DE is a diagonal of parallelogram BDFE.

$\therefore \quad \Delta BDE \cong \Delta FED$

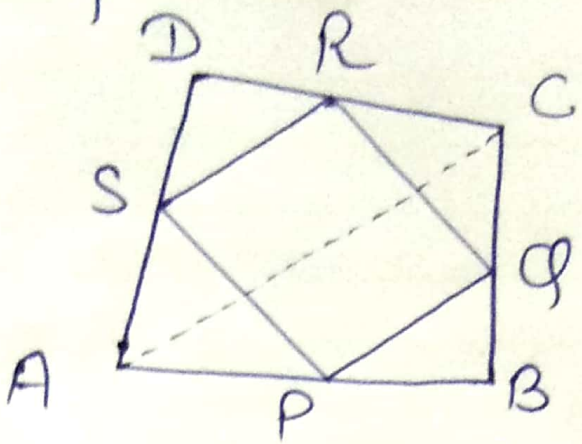
$\Delta DAF \cong \Delta FED$

$\Delta EFC \cong \Delta FED$

So, all the four triangles are Congruent.

Do- yourself :-

1)



ABCD is a quad in which P, Q, R and S are mid-points of sides AB, BC, CD and DA, AC is a diagonal.
Show that

(i) $SR \parallel AC$ and $SR = \frac{1}{2}AC$

(ii) $PQ = SR$ (iii) PQRS is a $\parallel^{gm}$

2) ABCD is a Rhombus and P, Q, R and S are the mid-points of sides AB, BC, CD and DA respectively.
Show that quadrilateral PQRS is a rectangle.