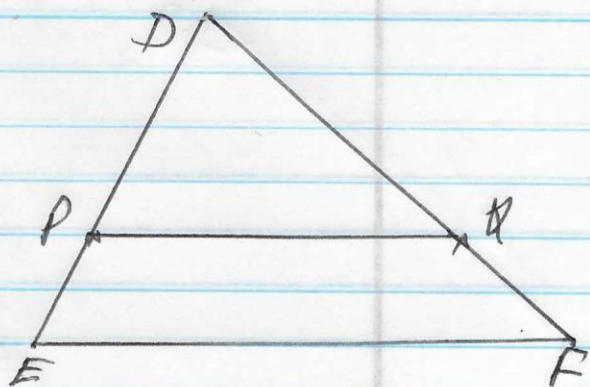
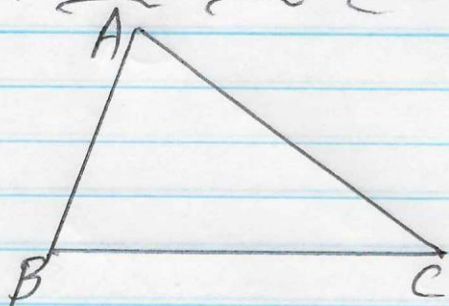


## Side-Side-Side Similarity Th. (SSS ~)



Given:  $\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$

To prove:  $\angle A = \angle D$ ;  $\angle B = \angle E$  and  $\angle C = \angle F$

Const:  $DP = AB$ ;  $DQ = AC$  join  $PQ$

Proof:  $\frac{AB}{DE} = \frac{AC}{DF}$  (given)

$$\Rightarrow \frac{DP}{DE} = \frac{DQ}{DF} \text{ (By const.)}$$

Now flip and subtract '1' from both sides

$$\frac{DE}{DP} = \frac{DF}{DQ}$$

$$\frac{DE}{DP} - 1 = \frac{DF}{DQ} - 1 \Rightarrow \frac{DE - DP}{DP} = \frac{DF - DQ}{DQ}$$

$$\Rightarrow \frac{PE}{DP} = \frac{QF}{DQ}$$

Now by converse of BPT,  $PQ \parallel EF$

Now  $\angle P = \angle E$ ;  $\angle Q = \angle F$

i.e.  $\angle B = \angle E$  and  $\angle C = \angle F$

Now  $\triangle ABC \sim \triangle DEF$  by AA ~