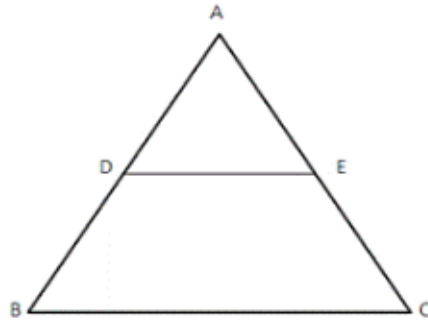




Exercise 5A

Question 13:



Given: A  $\triangle ABC$  in which;

$$AB = AC$$

and,  $DE \parallel BC$

To Prove:  $AD = AE$

Proof: Since  $DE \parallel BC$  and  $AB$  is a transversal.

$$\text{So, } \angle ADE = \angle ABC \quad \dots(i)$$

[ $\therefore$  These are corresponding angles]

Also  $DE \parallel BC$  and  $AC$  is a transversal

$$\text{So, } \angle AED = \angle ACB \quad \dots(ii)$$

[ $\therefore$  these are corresponding angles]

But,  $AB = AC$  [Given]

$$\text{So, } \angle ABC = \angle ACB \quad \dots(iii)$$

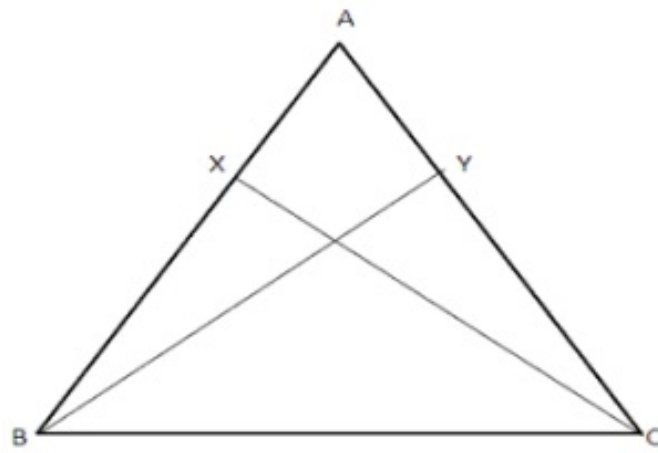
as opposite angles are also equal in case sides are equal

So from (i), (ii) and (iii) we have

$$\angle ADE = \angle AED$$

and in  $\triangle ADE$ , this implies that  $AD = AE$ .

Question 14:



Given:  $AX = AY$

To prove:  $CX = BY$

Proof: In  $\triangle AXC$  and  $\triangle AYB$ , we have

$$AX = AY \quad [\text{Given}]$$

$$\angle A = \angle A \quad [\text{Common angle}]$$

$$AC = AB \quad [\text{Two sides are equal}]$$

So, by Side-Angle-Side criterion of congruence, we have

$$\triangle AXC \cong \triangle AYB$$

$$\Rightarrow CX = YB \quad [\text{Since corresponding parts of congruent triangles are equal}]$$

\*\*\*\*\* END \*\*\*\*\*