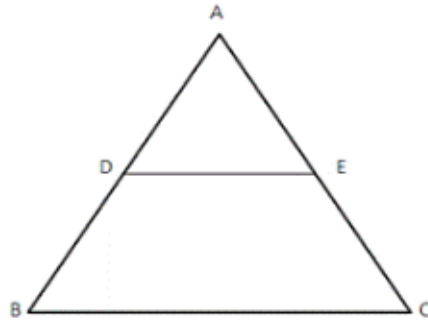




Exercise 5A

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]

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

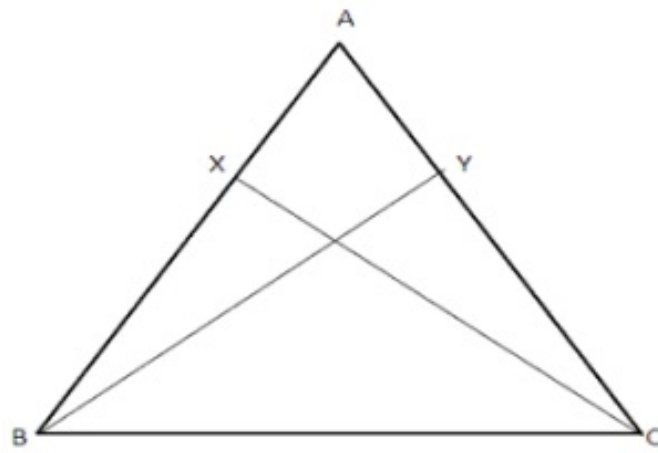
as opposite angles are also equal in case sides are equal

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 *****