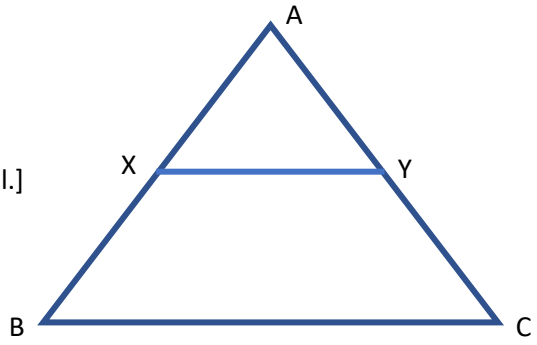
WORKSHEET ON MODULE 1/5 OF TRIANGLES

Solved Example:

- In the adjoining figure, ∠AXY = ∠AYX. If XY || BC, show that triangle ABC is isosceles.



Solution:

Given, ∠AXY = ∠AYX

So, AX = AY [Sides opposite to equal angles are equal.]

Also, from BPT we have

BX/AX = CY/AY

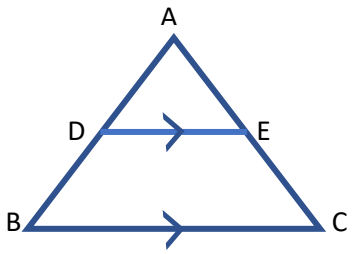
Thus,

AX + BX = AY + CY

So, AB = AC

Therefore, ΔABC is an isosceles triangle

Solve the following



1) In the adjoining figure, point D divides AB in the ratio 3: 5. Find:
   a. AE/EC
   b. AD/AB
   c. AE/AC
2) In ΔABC, D and E are points on the sides AB and AC respectively such that DE || BC
   a. If $\frac{AD}{DB} = \frac{3}{4}$; and AC = 15 cm, find AE
   b. If AD = 8*x* – 7, DB = 5*x* – 3, AE = 4*x* – 3 and EC = 3*x* – 1, find the value of *x*
3) ABCD is a trapezium in which AB || DC and P, Q are points on AD and BC respectively such that PQ || DC. If PD = 18 cm, BQ = 35 cm and QC = 15 cm, find AD
4) In ΔPQR, XY || QR; $\frac{PQ}{XQ} = \frac{7}{13}$ and PR = 6.3 cm. Find YR.
5) In ΔABC, DE || BC; AD = 2 cm, DB = 4 cm, AE = 3.5 cm and DE = 3 cm, find the length of AC and BC.
6) State, true or false:
   i. Two similar polygons are necessarily congruent.
   ii. Two congruent polygons are necessarily similar.
   iii. All equiangular triangles are similar.
   iv. All isosceles triangles are similar.
   v. Two isosceles-right triangles are similar.
   vi. Two isosceles triangles are similar, if an angle of one is congruent to the corresponding angle of the other.
   vii. The diagonals of a trapezium divide each other into proportional segments.