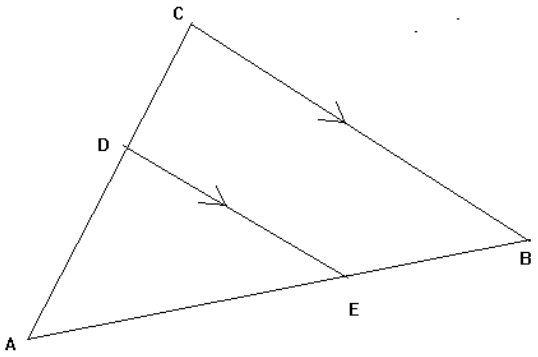
CLASS 10 MATHS ASSIGNMENT CHAPTER 13 SIMILARITY Continuation----

General direction for the students :-Whatever be the notes provided , everything must be copied in the Maths Copy and then do the Home work in the same Copy.

BASIC PROPORTIONALITY THEOREM (BPT) THALES THEOREM

If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points , then the other two sides are divided in the same ratio.



i.e If $DE \parallel CB$

$\Rightarrow \frac{AD}{DC} = \frac{AE}{EB}$

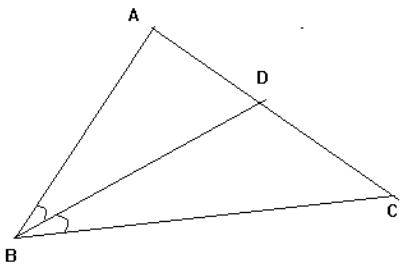
*** For the above situation another two more results can be made .

i) $\frac{AD}{AC} = \frac{AE}{AB} = \frac{DE}{BC}$ ii) $\frac{AC}{CD} = \frac{AB}{BE}$

** Converse of BPT is true. i.e If $\Rightarrow \frac{AD}{DC} = \frac{AE}{EB} \Rightarrow DE \parallel CB$.

INTERNAL BISECTOR OF AN ANGLE OF A TRIANGLE

The internal bisector of an angle of a triangle divides the opposite side internally in the ratio of the sides containing the angle.



i.e If $\angle ABD = \angle CBD \Rightarrow \frac{AD}{DC} = \frac{AB}{BC}$

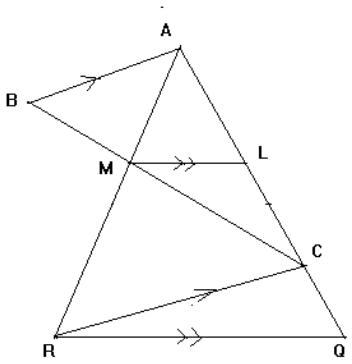
*** Above results converse is also true. i.e If $\frac{AD}{DC} = \frac{AB}{BC} \Rightarrow \angle ABD = \angle CBD$.

Exercise 13.2

9a) Consider $\Delta ARQ \ and \ \Delta AML$

SS 10 Maths

ML$/\!/\ RQ$ given



$\Rightarrow \frac{AM}{MR} = \frac{AL}{LQ}$ (BPT)----------(1)

Also $\frac{AL}{AQ} = \frac{AM}{AR} = \frac{LM}{RQ}$ ----------(4)

Consider $\Delta ABM \ and \ \Delta MRC$

∠AMB=∠RMC (V.O.A)

∠BAM=∠CRM (Alternate angle)

$\Rightarrow \Delta ABM \sim \Delta RCM$ (AA)

$\Rightarrow \frac{AB}{RC} = \frac{BM}{CM} = \frac{AM}{RM}$ ----------(2)

From (1) and (2)

$\Rightarrow \frac{AM}{MR} = \frac{AL}{LQ} = \frac{AB}{RC} = \frac{BM}{CM} = \frac{AM}{RM}$

$\Rightarrow \frac{BM}{MC} = \frac{AL}{LQ}$ ans.----------(3)

From (2) and (3)

$\frac{AM}{RM} = \frac{AL}{AQ} = \frac{AB}{RC} = \frac{BM}{CM}$

$\Rightarrow \frac{1}{2} = \frac{AL}{LQ}$

$\Rightarrow \frac{LQ}{AL} = \frac{2}{1} \Rightarrow \frac{AQ}{AL} = \frac{3}{1} \Rightarrow \frac{LM}{RQ} = \frac{1}{3}$ from (4)

⇒ LM: QR=1 : 3 ans.

***** For further explanation of above points are more solutions to the questions from the exercise watch the video.

HOME WORK: Remaining questions from the exercise.

Class 10 Maths