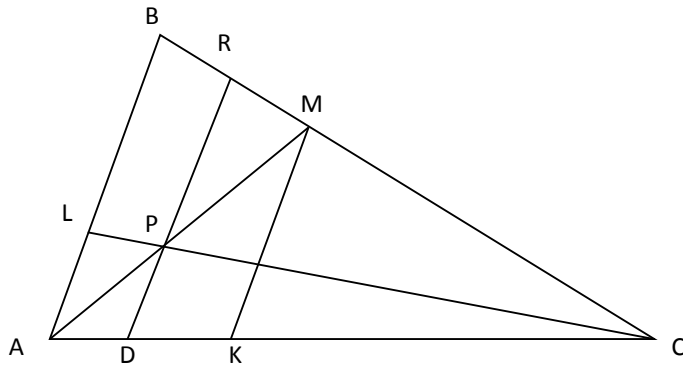In triangle ABC, point L and M divides the side AB and BC in the ratio 2:3 respectively. AM and LC intersect at point P. From point P a line parallel to BA is drawn intersecting AC at D. Find the ratio AD: DC

**Solution:**



1) MK||AB||RD, (AL:LB)=(2:3), (BM:MC)=(2:3)

2) Using Menelaus' theorem we have:

$$\frac{BM}{MC} \cdot \frac{CP}{LP} \cdot \frac{AL}{AB} = 1$$

$$\frac{2}{3} \cdot \frac{CP}{LP} \cdot \frac{2}{5} = 1$$

$$\frac{CP}{LP} \cdot \frac{4}{15} = 1$$

$$\frac{CP}{LP} = \frac{15}{4}$$

3) Using Thales' theorem we have:

$$\frac{LP}{CP} = \frac{AD}{CD} = \frac{4}{15}$$

**Answer: (AD:CD)=(4:15)**