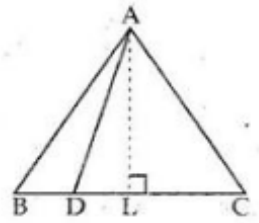
Exercise 10A

Question 26:

Given: ABC is a triangle in which D is a point on BC such that;

$$BD : DC = m : n$$



To Prove : $ar(\Delta ABD) : ar(\Delta ACD) = m : n$

Proof : $ar(\Delta ABD) = \frac{1}{2} \times BD \times AL$

and, $ar(\Delta ADC) = \frac{1}{2} \times DC \times AL$

Now, $BD : DC = m : n$

$\therefore \quad BD = DC \times \frac{m}{n}$

$\therefore \quad ar(\Delta ABD) = \frac{1}{2} \times BD \times AL$

$= \frac{1}{2} \times (DC \times \frac{m}{n}) \times AL$

$= \frac{m}{n} \times (\frac{1}{2} \times DC \times AL)$

$= \frac{m}{n} \times ar(\Delta ADC)$

$\Rightarrow \quad \frac{ar(\Delta ABD)}{ar(\Delta ADC)} = \frac{m}{n}$

$\Rightarrow \quad ar(\Delta ABD) : ar(\Delta ADC) = m : n$

********** END **********