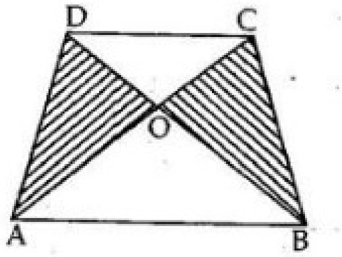
Exercise 10A

Question 9:



Consider ΔADC and ΔDCB. We find they have the same base CD and lie between two parallel lines DC and AB.

Triangles on the same base and between the same parallels are equal in area.

So ΔCDA and ΔCDB are equal in area.

$\therefore \quad area(\Delta CDA) = area(\Delta CDB)$

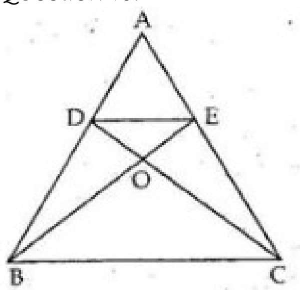
Now, $\quad area(\Delta AOD) = area(\Delta ADC) - area(\Delta OCD)$

and $\quad area(\Delta BOC) = area(\Delta CDB) - area(\Delta OCD)$

$\qquad\qquad = area(\Delta ADC) - area(\Delta OCD)$

$\Rightarrow \quad area(\Delta AOD) = area(\Delta BOC)$

Question 10:



(i) ΔDBE and ΔDCE have the same base DE and lie between parallel lines BC and DE.

So, $\quad area(\Delta DBE) = area(\Delta DCE)$.....(1)

Adding $area(\Delta ADE)$ on both sides, we get

$ar(\Delta DBE) + ar(\Delta ADE) = ar(\Delta DCE) + ar(\Delta ADE)$

$\Rightarrow \quad ar(\Delta ABE) = ar(\Delta ACD)$

(ii) Since $\quad ar(\Delta DBE) = ar(\Delta DCE) \quad$ [from (1)]

Subtracting $ar(\Delta ODE)$ from both sides we get

$ar(\Delta DBE) - ar(\Delta ODE) = ar(\Delta DCE) - ar(\Delta ODE)$

$\Rightarrow \quad ar(\Delta OBD) = ar(\Delta OCE)$

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