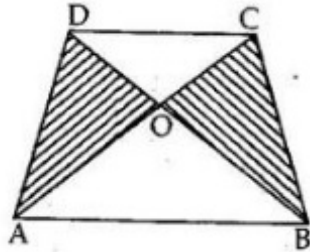




Exercise 10A

Question 9:



Consider $\triangle ADC$ and $\triangle DCB$. 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 $\triangle CDA$ and $\triangle CDB$ are equal in area.

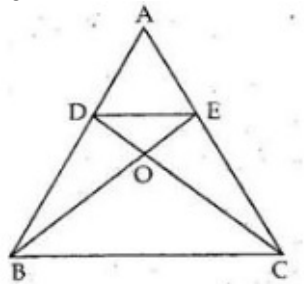
$$\therefore \text{area}(\triangle CDA) = \text{area}(\triangle CDB)$$

$$\text{Now, } \text{area}(\triangle AOD) = \text{area}(\triangle ADC) - \text{area}(\triangle OCD)$$

$$\text{and } \text{area}(\triangle BOC) = \text{area}(\triangle CDB) - \text{area}(\triangle OCD) \\ = \text{area}(\triangle ADC) - \text{area}(\triangle OCD)$$

$$\Rightarrow \text{area}(\triangle AOD) = \text{area}(\triangle BOC)$$

Question 10:



- (i) $\triangle DBE$ and $\triangle DCE$ have the same base DE and lie between parallel lines BC and DE .

$$\text{So, } \text{area}(\triangle DBE) = \text{area}(\triangle DCE) \dots (1)$$

Adding $\text{area}(\triangle ADE)$ on both sides, we get

$$\text{ar}(\triangle DBE) + \text{ar}(\triangle ADE) = \text{ar}(\triangle DCE) + \text{ar}(\triangle ADE)$$

$$\Rightarrow \text{ar}(\triangle ABE) = \text{ar}(\triangle ACD)$$

- (ii) Since $\text{ar}(\triangle DBE) = \text{ar}(\triangle DCE)$ [from (1)]

Subtracting $\text{ar}(\triangle ODE)$ from both sides we get

$$\text{ar}(\triangle DBE) - \text{ar}(\triangle ODE) = \text{ar}(\triangle DCE) - \text{ar}(\triangle ODE)$$

$$\Rightarrow \text{ar}(\triangle OBD) = \text{ar}(\triangle OCE)$$

***** END *****

