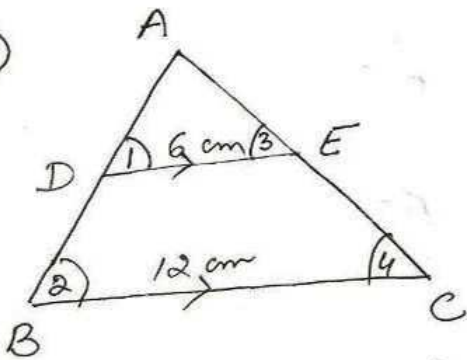


ex 6.3

8



To find $\frac{\text{ar}(\triangle ADE)}{\text{ar}(\square DECB)}$

Sol $DE \parallel BC$

$\angle 1 = \angle 2$ (alternate)
 $\angle 3 = \angle 4$ (interior $\angle s$)

$\triangle ADE \sim \triangle ABC$

$$\begin{aligned} \Rightarrow \frac{\text{ar}(\triangle ADE)}{\text{ar}(\triangle ABC)} &= \frac{DE^2}{BC^2} \\ &= \frac{6 \times 6}{12 \times 12} \\ &= \frac{1}{4} \end{aligned}$$

$$\Rightarrow \frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle ADE)} = \frac{4}{1}$$

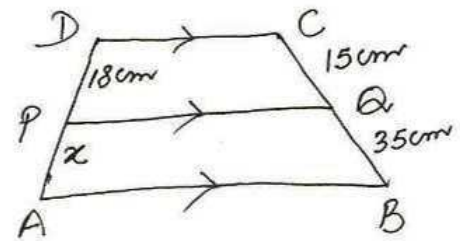
appl. div

$$\frac{\text{ar}(\triangle ABC) - \text{ar}(\triangle ADE)}{\text{ar}(\triangle ADE)} = \frac{4-1}{1}$$

$$\Rightarrow \frac{\text{ar}(\square DECB)}{\text{ar}(\triangle ADE)} = \frac{3}{1}$$

$$\Rightarrow \frac{\text{ar}(\triangle ADE)}{\text{ar}(\square DECB)} = \frac{1}{3}$$

9



Sol $AB \parallel DC$

$PQ \parallel DC$

$\Rightarrow DC \parallel PQ \parallel AB$

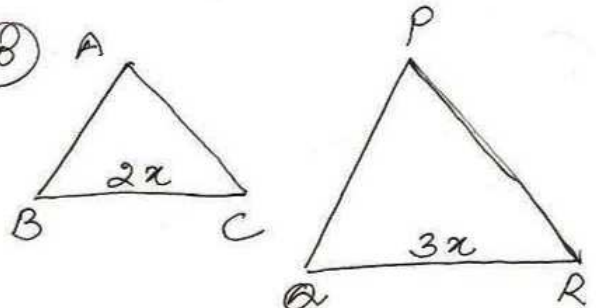
$\therefore \frac{DP}{PA} = \frac{CQ}{QB}$ [Proportion intercept theorem]

$$\frac{18}{x} = \frac{15}{35-15}$$

$$\Rightarrow x = 42$$

$$\therefore AD = 18 + 42 = 60 \text{ cm}$$

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$\triangle ABC \sim \triangle PQR$

$$\therefore \frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle PQR)} = \frac{BC^2}{QR^2}$$

$$\frac{48}{\text{ar}(\triangle PQR)} = \frac{(2x)^2}{(3x)^2}$$

$$\begin{aligned} \Rightarrow \text{ar}(\triangle PQR) &= \frac{48 \times 9x^2}{4x^2} \\ &= 108 \text{ cm}^2 \end{aligned}$$