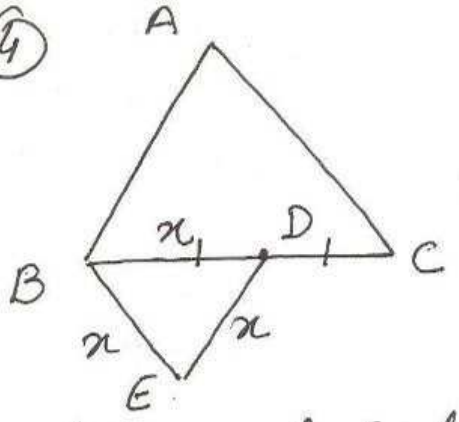
ex 9.2 , exemplar ix

④



let each side of equi. $\triangle BDE = x$ units

$\because$ D is midpt of BC

$\therefore BC = 2BD$

$= 2x$

$\therefore$ each side of equi. $\triangle ABC = 2x$ units

$$\frac{ar(\triangle BDE)}{ar(\triangle ABC)} = \frac{\frac{\sqrt{3}}{4}x^2}{\frac{\sqrt{3}}{4}(2x)^2}$$

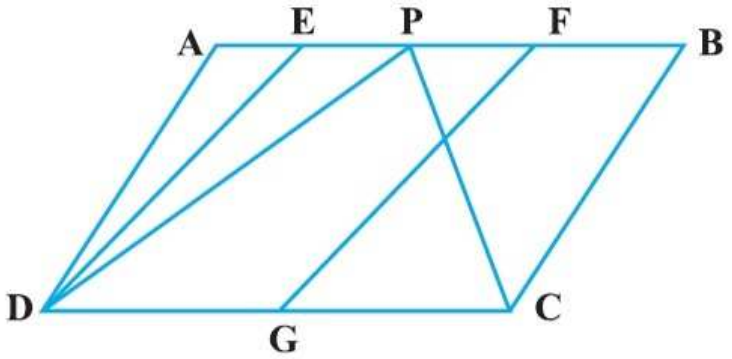
$$= \frac{x^2}{4x^2}$$

$$\frac{ar(\triangle BDE)}{ar(\triangle ABC)} = \frac{1}{4}$$

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

True

⑤



$ar(\triangle DPC) = \frac{1}{2} ar(\text{llgm } ABCD)$ ... ①

$$\frac{ar(\text{llgm } EFGH)}{ar(\text{llgm } ABCD)} = \frac{DG \times h}{DC \times h}$$

$$= \frac{DG}{2DG}$$

[$\because$ G is midpt. of DC]

$\Rightarrow ar(\text{llgm } EFGH) = \frac{1}{2} ar(\text{llgm } ABCD)$

... ⑪

From ①, ⑪

$ar(\triangle DPC) = ar(\text{llgm } EFGH)$

False