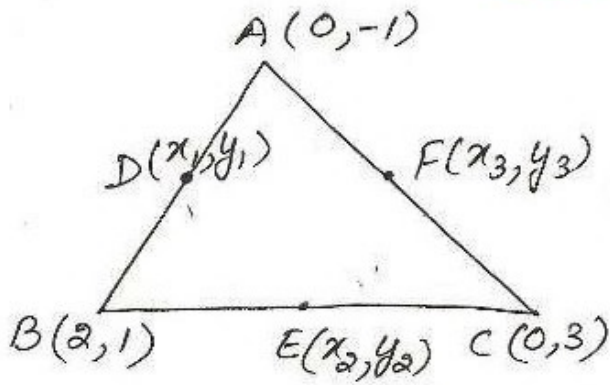


③

ex 7.3

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D is midpt of AB

$$\begin{aligned} \therefore x_1 &= \frac{0+2}{2}, & y_1 &= \frac{-1+1}{2} \\ &= \frac{2}{2} & &= \frac{0}{2} \\ &= 1 & &= 0 \end{aligned}$$

$$\therefore D(1, 0)$$

E is midpt. of BC

$$\begin{aligned} x_2 &= \frac{2+0}{2}, & y_2 &= \frac{1+3}{2} \\ &= \frac{2}{2} & &= \frac{4}{2} \\ &= 1 & &= 2 \end{aligned}$$

$$\therefore E(1, 2)$$

F is midpoint of CA

$$\begin{aligned} \therefore x_3 &= \frac{0+0}{2}, & y_3 &= \frac{-1+3}{2} \\ &= 0 & &= \frac{2}{2} \\ & & &= 1 \end{aligned}$$

$$F(0, 1)$$

$$\text{ar}(\triangle ABC)$$

$$\begin{aligned} &= \frac{1}{2} | 0(1-3) + 2(3+1) + 0(-1-1) | \\ &= \frac{1}{2} | 0 + 2 \times 4 + 0 | \\ &= \frac{1}{2} \times 8 \\ &= 4 \text{ Sq. units} \end{aligned}$$

$$\text{ar}(\triangle DEF)$$

$$\begin{aligned} &= \frac{1}{2} | 1(2-1) + 1(1-0) + 0(0-2) | \\ &= \frac{1}{2} | 1 \times 1 + 1 \times 1 + 0 | \\ &= \frac{1}{2} | 1 + 1 | \\ &= \frac{1}{2} \times 2 \\ &= \frac{1}{2} \times 2 \\ &= 1 \text{ Sq. unit} \end{aligned}$$

$$\text{reqd. ratio} = \frac{1}{4}$$

$$= 1:4$$

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