

⑨ ar(Δ)

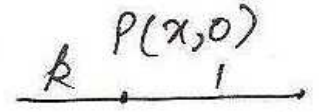
$$= \frac{1}{2} \begin{vmatrix} -8 & 4 \\ -6 & 6 \\ -3 & 9 \\ -8 & 4 \end{vmatrix}$$

$$= \frac{1}{2} (-48 + 24 - 54 + 18 - 12 + 72)$$

$$= \frac{1}{2} (114 - 114)$$

$$= \frac{1}{2} (0)$$

$$= 0$$

⑩  $A(-4, -6)$ $B(-1, 7)$

let point on x axis
 $P(x, 0)$

$$AP:PB = k:1$$

$$0 = \frac{7k-6}{k+1}$$

$$\Rightarrow 7k-6=0$$

$$\Rightarrow \frac{k}{1} = \frac{6}{7}$$

$$x = \frac{6(-4) + 7(-1)}{6+7}$$

$$= \frac{-6-28}{13}$$

$$= -34/13, P(-34/13, 0)$$

⑪

$$P\left(\frac{3}{4}, \frac{5}{12}\right)$$

$A\left(\frac{1}{2}, \frac{3}{2}\right)$ $B(2, -5)$

$$\text{let } AP:PB = k:1$$

$$\frac{3}{4} = \frac{2k + \frac{1}{2}}{k+1}$$

$$\frac{3}{4} = \frac{4k+1}{2k+2}$$

$$\Rightarrow 6k+6 = 16k+4$$

$$\Rightarrow 10k = 2$$

$$\Rightarrow k = \frac{2}{10}$$

$$\Rightarrow k = \frac{1}{5}$$

\therefore required ratio = 1:5

⑫

$$P(9a-2, -b)$$

$A(3a+1, -3)$ $B(8a, 5)$

$$AP:PB = 3:1$$

using Section formula

$$9a-2 = \frac{24a+3a+1}{4}$$

$$\Rightarrow 36a-8 = 27a+1$$

$$\Rightarrow 9a = 9$$

$$\Rightarrow a = 1$$

$$-b = \frac{15-3}{4}$$

$$\therefore a=1, b=-3$$

$$b = -3$$