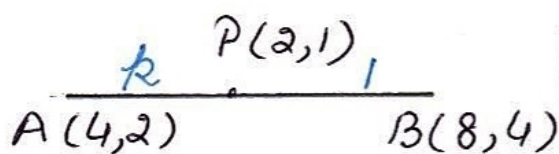


(12)



$$2 = \frac{8k+4}{k+1}$$

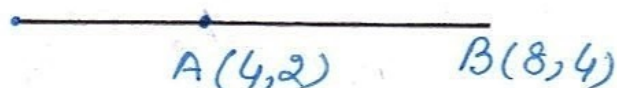
$$\Rightarrow 2k+2 = 8k+4$$

$$\Rightarrow 6k = -2$$

$$\Rightarrow \frac{k}{1} = -\frac{1}{3}$$

$\therefore$  P lies on BA produced

P(2,1)



let  $AP:BP = k:1$

$$2 = \frac{8k-4}{k-1}$$

$$\Rightarrow 2k-2 = 8k-4$$

$$\Rightarrow 6k = 2$$

$$\Rightarrow \frac{k}{1} = \frac{1}{3}$$

$$\frac{AP}{BP} = \frac{1}{3}$$

$$\Rightarrow \frac{AP}{AB} = \frac{1}{2} \text{ (D)}$$

(13)  $P(\frac{a}{3}, 4)$  is midpoint of QR.  $Q(-6,5), R(-2,3)$

$$\frac{a}{3} = \frac{-6 + -2}{2}$$

$$a = -\frac{8}{2} \times 3$$

$$= -4 \times 3$$

$$= -12$$

(B)

(14) any point on y-axis is  $P(0, y)$

$\therefore$  P lies on perpendicular bisector of AB

$\therefore$  P is equidistant from  $A(1,5), B(4,6)$

$$PA = PB$$

$$\Rightarrow PA^2 = PB^2$$

$$(1-0)^2 + (5-y)^2 = (4-0)^2 + (6-y)^2$$

$$\Rightarrow 1 + 25 + y^2 - 10y = 16 + 36 + y^2 - 12y$$

$$\Rightarrow 2y = 26$$

$$\Rightarrow y = 13$$

$$\therefore P(0, 13) \text{ (A)}$$