

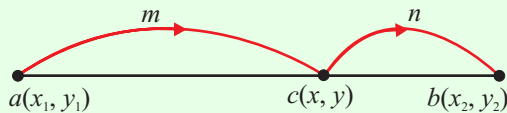
LINE (Q 3, PAPER 2)

LESSON NO. 2: DIVISION OF A LINE

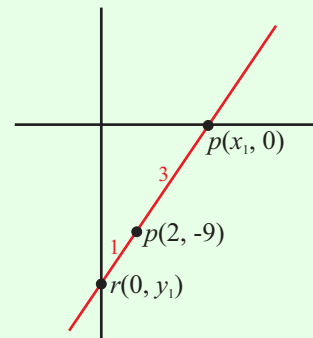
2006

3 (b) The line K has positive slope and passes through the point $p(2, -9)$. K intersects the x -axis at q and the y -axis at r and $|pq|:|pr| = 3:1$. Find the co-ordinates of q and the co-ordinates of r .

SOLUTION



$$x = \frac{mx_2 + nx_1}{m+n}, y = \frac{my_2 + ny_1}{m+n} \dots\dots \textcircled{5}$$



p divides $[qr]$ in the ratio 3:1.

$$\therefore (2, -9) = \left(\frac{3(0) + 1(x_1)}{3+1}, \frac{3(y_1) + 1(0)}{3+1} \right)$$

$$\Rightarrow (2, -9) = \left(\frac{x_1}{4}, \frac{3y_1}{4} \right) \Rightarrow x_1 = 8, y_1 = -12$$

Ans: $p(8, 0), q(0, -12)$

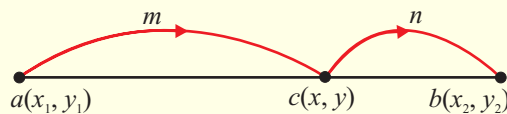
2004

3 (a) $a(-1, 4)$ and $b(9, -1)$ are two points and p is a point in $[ab]$. Given that

$|ap|:|pb| = 2:3$, find the co-ordinates of p .

SOLUTION

3 (a)



$$x = \frac{mx_2 + nx_1}{m+n}, y = \frac{my_2 + ny_1}{m+n} \dots\dots \textcircled{5}$$

$$x = \frac{2(9) + 3(-1)}{5} = 3, y = \frac{2(-1) + 3(4)}{5} = 2$$

Ans: $p(3, 2)$