

29/07/2019

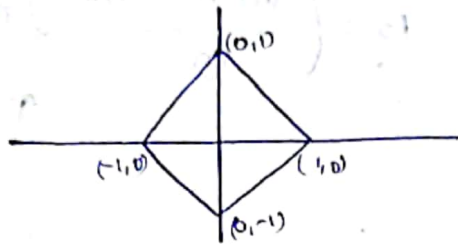
2-D GEOMETRY

(x, y) be a point then,

* distance from x -axis, $d_{x\text{-axis}} = |y|$.

* distance from y -axis, $d_{y\text{-axis}} = |x|$.

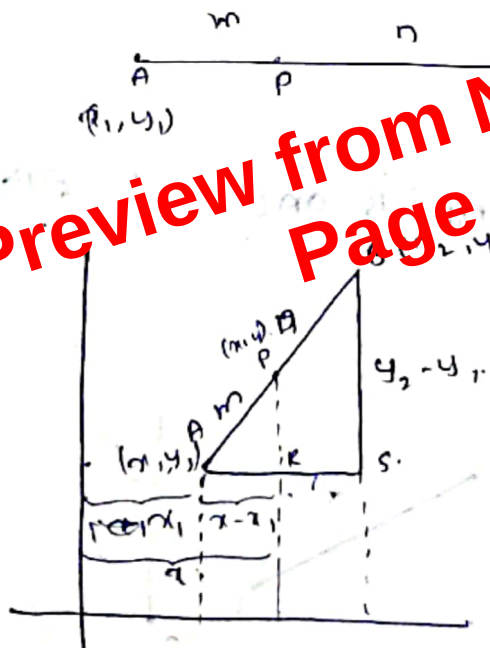
* $d_{y\text{-axis}} + d_{x\text{-axis}} = 1 \Rightarrow |x| + |y| = 1$



Section Formula:

(i) Internal Division:

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Page 1 of 12



$$\frac{AR}{AP} = \frac{AS}{BD}$$

$$\frac{AR}{AS} = \frac{AP}{PB} = \frac{m}{m+n}$$

$$\cos \theta = \frac{x - x_1}{\left(\frac{m}{m+n}\right) AB} = \frac{x_2 - x_1}{AB}$$

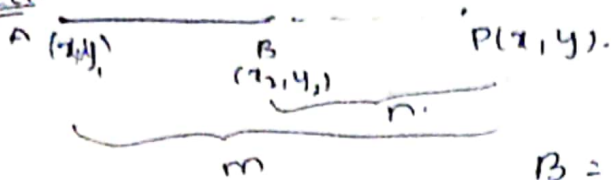
$$(n+m)(x - x_1) - m(x_2 - x_1) = 0$$

$$x = \frac{mx_2 + nx_1}{m+n}$$

$$(x, y) \equiv \left(\frac{mx_1 + nx_2}{m+n}, \frac{my_1 + ny_2}{m+n} \right)$$

(ii) External division:

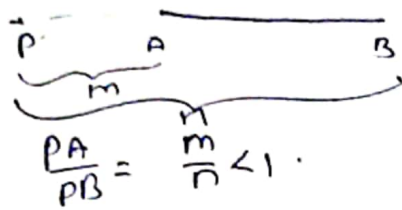
Case (i)



$$\frac{PA}{PB} = \frac{m}{n} > 1$$

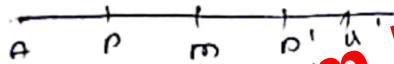
$$P = \left(\frac{(m-n)x_1 + nx_2}{m}, \frac{(m-n)y_1 + ny_2}{m} \right)$$

Case (ii)



$$x, y \equiv \left(\frac{mx_1 - nx_2}{m-n}, \frac{my_1 - ny_2}{m-n} \right)$$

NOTE:



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Page 2 of 12

