

LECTURER'S NAME: MR OKUNLOLA.

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NAME OF STUDENT: ABE OLUWATOMISIN THADEUS.

DEPARTMENT: MECHANICAL ENGINEERING.

MATRIC NO: 191ENG1001.

Assignment

1. If A and B are the points (5, 2) and (15, -7) respectively. find the coordinates of the point which divides AB externally in the ratio 3:1

Solution

The coordinates dividing the join of (x_1, y_1) (x_2, y_2)

$$= \left(\frac{Bx_2 + Ax_1}{p+1}, \frac{By_2 + Ay_1}{p+1} \right)$$

$p \neq 1$

externally the ratio is $-3:1$

$$\text{SO } R = \left(\frac{-3(15) + 5}{-3+1}, \frac{-3(-7) + 2}{-3+1} \right)$$

$$C \begin{matrix} x_1 & y_1 \\ (5, & 2) \end{matrix} \quad D \begin{matrix} x_2 & y_2 \\ (15, & -7) \end{matrix}$$

$$\frac{-45+5}{-3+1} \quad , \quad \frac{21+2}{-3+1}$$

$$= \frac{-40}{-2} \quad , \quad \frac{23}{-2}$$

$$= 20, -11.5$$

$$\text{coordinates } (x, y) = \underline{\underline{(20, -11.5)}}$$