

UBAH CHEMELIE

Computer science

19/SC1021087

Assignment

(1) If A and B are the points $(5, 3)$ and $(15, -7)$ respectively and the components of the point which divides AB externally in the ~~ratio~~ ratio $3:1$

Solution

for external division is $\left(\frac{mx_2 + ny_1}{m-n}, \frac{my_2 - ny_1}{m-n} \right)$

Let the point be $P(x, y)$

with the ratio $3:1$

$\therefore m=3, n=1, x_1=5, y_1=3, x_2=15$ and $y_2=-7$

$$x = \left[\frac{mx_2 - ny_1}{m-n} \right] = \left[\frac{(3)(15) - (1)(5)}{(3) - (1)} \right] = \left[\frac{45 - 5}{2} \right] = \frac{40}{2} = 20$$

$$y = \left[\frac{my_2 - ny_1}{m-n} \right] = \left[\frac{(3)(-7) - (1)(3)}{3 - 1} \right] = \left[\frac{-21 - 3}{2} \right] = \frac{-24}{2} = -12$$

$\Rightarrow P(20, -12)$