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Course Code → MAT102

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

solution

$$P = \left\{ \left[\frac{mx_2 - nx_1}{m-n} \right], \left[\frac{my_2 - ny_1}{m-n} \right] \right\}$$

where $m=3, n=1, x_1=5, x_2=15, y_1=3, y_2=-7$

$$P = \left\{ \left[\frac{3(15) - 1(5)}{3-1} \right], \left[\frac{3(-7) - 1(3)}{3-1} \right] \right\}$$

$$= \left\{ \frac{45-5}{2}, \frac{-21-3}{2} \right\}$$

$$= \left\{ \frac{40}{2}, \frac{-24}{2} \right\}$$

$$= (20, -12)$$

The coordinates of the point are $(20, -12)$