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MAT 102

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

Solution

$$A = (5, 3) \quad x_1 = 5 \quad y_1 = 3$$

$$B = (15, -7) \quad x_2 = 15 \quad y_2 = -7$$

$$\text{ratio} = 3:1 \quad k = 3 \quad l = 1$$

To find coordinate of the point which divides AB externally.

$$x = \frac{l x_1 - k x_2}{l - k}$$

$$x = \frac{1(5) - 3(15)}{1 - 3}$$

$$x = \frac{5 - 45}{-2}$$

$$x = \frac{-40}{-2}$$

$$x = 20$$

$$y = \frac{Ly_1 - Ky_2}{L - K}$$

$$y = \frac{1(3) - 3(-7)}{1 - 3}$$

$$y = \frac{3 + 21}{-2}$$

$$y = \frac{24}{-2}$$

$$y = -12$$

\therefore The coordinate which divides AB externally $= (x, y) = (20, -12)$