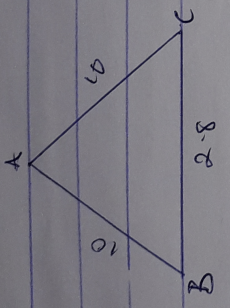


Answers

$A(6, -5), B(-2, 1), C(0, 3)$

$\textcircled{1} AB = A(x_1, y_1), B(x_2, y_2)$

$$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$= \sqrt{(-2 - 6)^2 + (1 - (-5))^2}$$

$$= \sqrt{(-8)^2 + (6)^2}$$

$$= \sqrt{64 + 36}$$

$$= \sqrt{100} = 10$$

$$AB = 10, AC = 10, BC = 2.8$$

$$\therefore AC = A(x_1, y_1), C(x_2, y_2)$$

$$AC = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$= \sqrt{(0 - 6)^2 + (3 - (-5))^2}$$

$$= \sqrt{(-6)^2 + (8)^2}$$

$$= \sqrt{36 + 64}$$

$$= \sqrt{100} = 10$$

$$BC = B(x_1, y_1), C(x_2, y_2)$$

$$BC = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

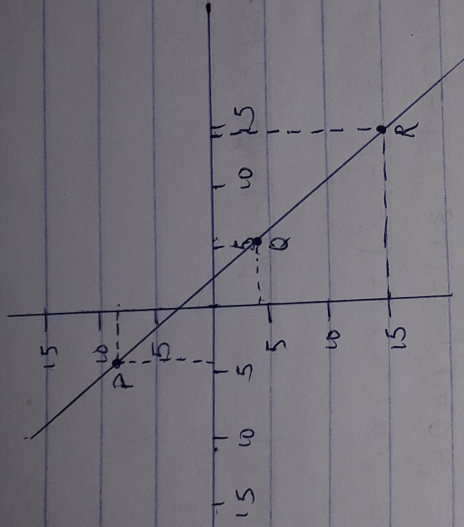
$$= \sqrt{(0 - (-2))^2 + (3 - 1)^2}$$

$$= \sqrt{(2)^2 + (2)^2}$$

$$= \sqrt{4 + 4}$$

$$= \sqrt{8} = 2.8$$

$$2 \quad P(5, -3), Q(-4, 9), R(14, -15)$$



i) P divides QR externally

$$y = \frac{ly_1 - ky_2}{l - k}$$

$$P(5, -3), Q(-4, 9), R(14, -15), \text{ } P \text{ divides } QR \text{ externally}$$

$$1 \cdot 9 = \frac{l(-3) - k(-15)}{l - k}$$

$$9(l - k) = 3l + 15k$$

$$9l - 9k = 3l + 15k$$

$$9l + 3l = 15k + 9k$$

$$12l = 24k$$

$$\therefore \text{ratio } k:l = 2:1$$

ii) R divides PQ externally

$$y = \frac{ly_1 - ky_2}{l - k}$$

$$R(14, -15), P(5, -3), Q(-4, 9), \text{ } R \text{ divides } PQ \text{ externally}$$

$$1 \cdot (-15) = \frac{l(-3) - k(9)}{l - k}$$

$$(l - k)(-15) = -3l - 9k$$

$$-15l + 15k = -3l - 9k$$

$$-15l + 8l = -9k - 15k$$

$$-7l = -24k$$

$$\therefore \text{ratio } k:l = 2:1$$