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

$= x_1 = -2 \quad y_1 = 1$

$x_2 = 0 \quad y_2 = 3$

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

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

$= \sqrt{4+4}$

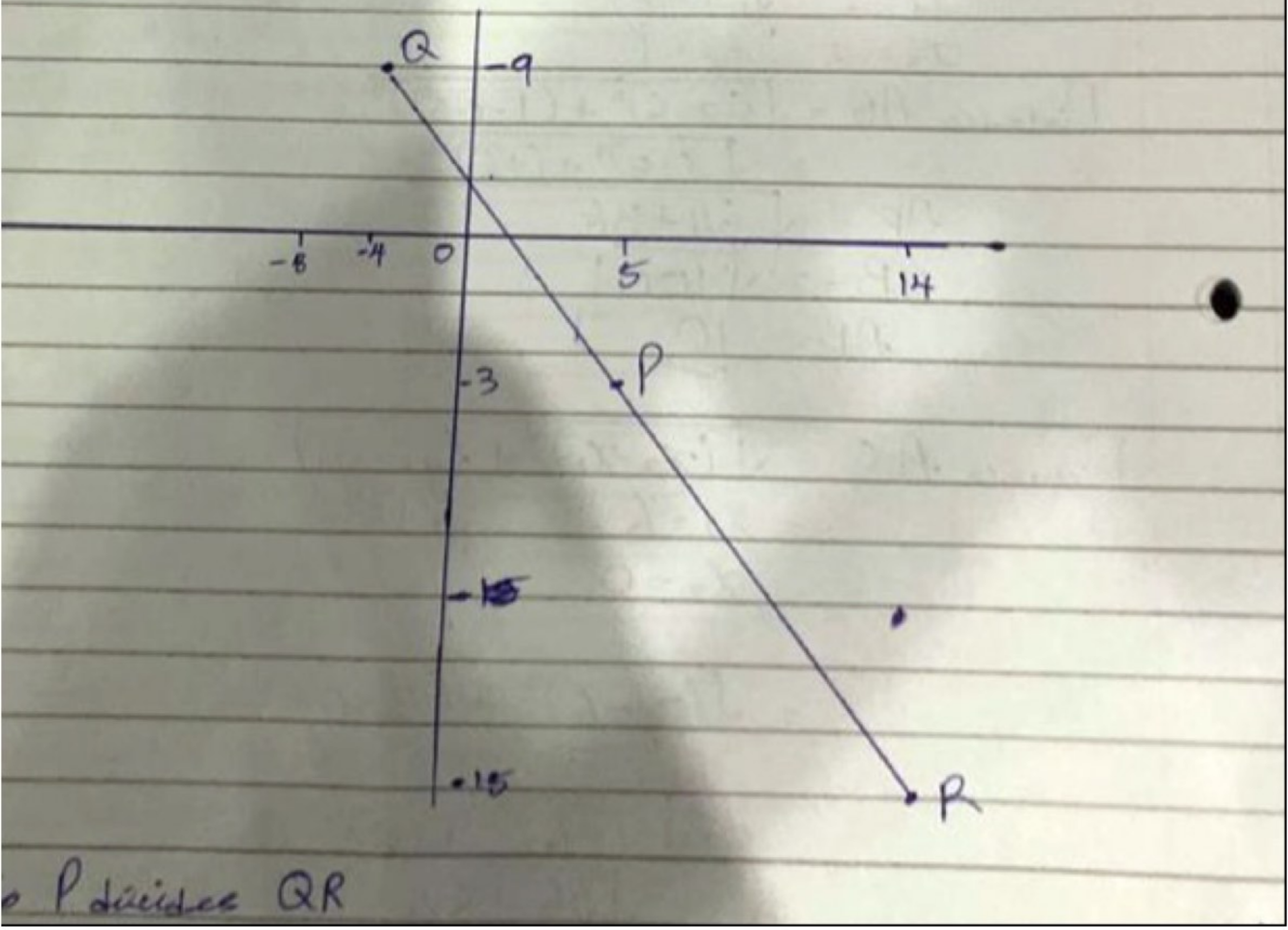
$= \sqrt{8}$

1, Since $AB = AC$, therefore the triangle is an isoceles triangle.

If P, Q and R are the points $(5,-3)$, $(-4,9)$ and $(14,-15)$ respectively. Find the ratio in which

P divides QR

R divides PQ



P divides QR

$$\frac{L}{2} = K$$

$$\therefore \frac{1}{2} = \frac{K}{L}$$

The ratio R divided P Q

$$= 2 : 1$$

$L=?$ $K=?$

$$5=\frac{L(-4)+K(14)}{L+K}$$

$$5(L+K)=-4L+14K$$

$$5L+5K=-4L+14K$$

Collect like terms

$$5L+4L=14K-5K$$

$$\frac{9L}{9}=\frac{9K}{9}$$

$$L=K$$

$$\therefore \frac{K}{L}=\frac{1}{1}$$

$\therefore$ The ratio is $1:1$

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

$\begin{cases} y_2=-3\ ,\ y_2=-15 \\ y_1=9\ ,\ L=?\quad K=? \end{cases}$

$$-3=\frac{L(9)+K(-15)}{L+K}$$

$$-3(L+K)=9L-15K$$

$$-3L-3K=9L-15K$$

$$-3L-9L=-15K+3K$$

$$\frac{-12L}{-12}=\frac{-12K}{-12}$$

$$K=L$$

$$\therefore \frac{K}{L}=\frac{1}{1}$$

The P divides QR

ii) R divides PQ

R divides PQ externally

$x = \frac{Lx_1 - Kx_2}{L-K}$ $\begin{cases} x_1 = 5, x_2 = -4, x = 14 \\ L = ?, K = ? \end{cases}$

$\therefore 14 = \frac{L(5) - K(-4)}{L-K}$

$14 = \frac{5L + 4K}{L-K}$

$14(L-K) = 5L + 4K$

$14L - 14K = 5L + 4K$

collect like terms

$14L - 5L = 4K + 14K$

$\frac{9L}{9} = \frac{18K}{9}$

$L = 2K$

$\frac{L}{K} = \frac{2K}{K}$

$\frac{K}{L} = \frac{1}{2}$

$\therefore -2 : 1$

$y = \frac{Ly_1 - Ky_2}{L-K}$ $\begin{cases} y_2 = 9 \\ y_1 = -3 \end{cases}$ $y = -15$ $L = ?, K = ?$

$-15 = \frac{L(-3) - K(9)}{L-K}$

$-15(L-K) = -3L - 9K$

$-15L + 15K = -3L - 9K$

$-15L + 3L = -9K - 15K$

$-12L = -24K$

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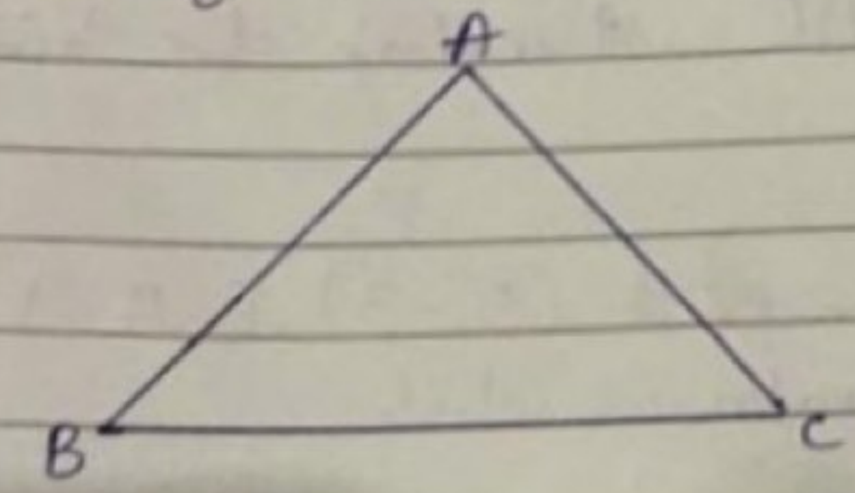
1. Show that points A(6,-5), B(-2,1) C(0,3) from an isoscales triangle



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

$x_1 = 6 \quad y_1 = -5$

$x_2 = -2 \quad y_2 = 1$

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

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

$AB = \sqrt{64+36}$

$AB = \sqrt{100}$

$AB = 10$

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

$= x_1 = 6 \quad y_1 = -5$

$x_2 = 0 \quad y_2 = 3$

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

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

$= \sqrt{36+64}$

$= \sqrt{100}$

$= 10$