

Lecturer's Name: THE UNIVERSITY

Date Submitted: 02/04/2020

Name of Student: AKA OUNDAIOMBIK

Matric No: 191214051001

Assignment

1. Show that the points $A(6, -5)$, $B(-2, 1)$ & $C(0, 3)$ form an isosceles triangle.

Solution

$$\overline{AB} = \overline{AC}$$

$$\overline{AB} = \overline{BC}$$

for line \overline{AB}

$$A(6, -5) \quad B(-2, 1)$$

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

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

$$= \sqrt{(-8)^2 + (1 + 5)^2}$$

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

$$= \sqrt{64 + 36} = \sqrt{100} = 10$$

BC

$$B(-2, 1) \quad C(0, 3)$$

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

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

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

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

$$= \sqrt{4 + 4} = \sqrt{8}$$

AC

$$A(6, -5) \quad C(0, 3)$$

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

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

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

$$= \sqrt{36 + 64} = \sqrt{100}$$

10

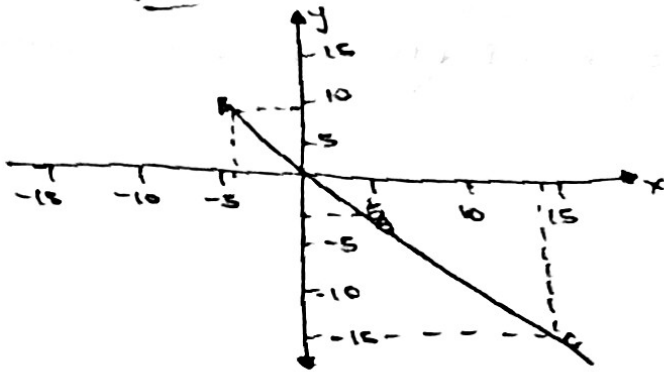
$\therefore \overline{AB} = \overline{AC}$ form an isosceles triangle.

P & Q are points (5, -3) and (-4, 9) respectively. Find the ratio in which

a. R divides PQ

b. R divides PQ

SOLUTION



P divides QR internally.
R divides PQ externally.

$$x = \frac{kx_2 + lx_1}{k+l}$$

$$(x_1, y_1) = (-4, 9)$$

$$(x_2, y_2) = (14, -15)$$

$$(x, y) = (15, -5)$$

$$x = \frac{kx_2 + lx_1}{k+l}$$

$$15 = \frac{k(14) + l(-4)}{k+l}$$

$$15(k+l) = 14k - 4l$$

$$15k + 15l = 14k - 4l$$

$$1k + 19l = -5l$$

$$7k = 9l$$

$$k = l$$

$$= 1:1$$

$$k:l = (1:1)$$

R divides PQ externally.

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

$$(x_1, y_1) = (5, -3)$$

$$(x_2, y_2) = (-4, 9)$$

$$(x, y) = (14, -15)$$

$$x = \frac{kx_2 - lx_1}{k-l}$$

$$k-l$$

$$-15 = \frac{k(9) - l(5)}{k-l}$$

$$-15(k-l) = 9k + 5l$$

$$-15k + 15l = 9k + 5l$$

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

$$= \frac{12k}{24k} = \frac{24l}{24}$$

$$k:l =$$

$$= 1:2$$

$$k:l = (1:2)$$