Assignment

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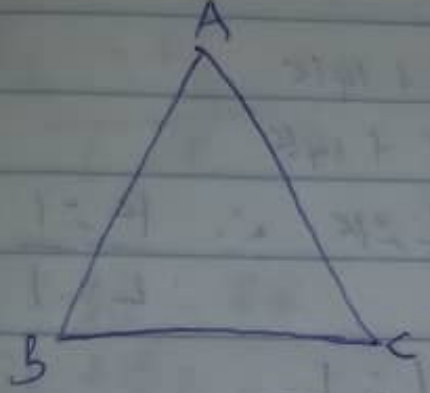
14/ENG04/010
Elect/Elect
MAT 102

(1)



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

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

$x_2 = -2 \quad y_2 = 1$

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

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

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

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

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

$x_2 = 0 \quad y_2 = 3$

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

$= \sqrt{(-6)^2 + (8)^2} = \sqrt{36 + 64} = \sqrt{100} = 10$

Distance $BC = \sqrt{(10-(-2))^2 + (3-1)^2}$

$= \sqrt{4 + 4} = \sqrt{8}$ $\therefore$ since $AB = AC$

The Triangle is isoceles.

2a) $x = \frac{Lx_1 + Kx_2}{L+K}$

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

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

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

$\frac{9L}{9} = \frac{9K}{9}$ $\quad L = K \quad \therefore \quad \frac{K}{L} = \frac{1}{1}$

$1:1$

b) $y = \frac{Lx_1 + Kx_2}{L+K}$ $\quad y = -3, x_1 = 9, x_2 = -15$

$L = ? \quad K = ?$

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

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

$-12L = -12K$

$L = K$

$1:1$

The ratio P divided Q = 1:1

c) $x = \frac{Lx_1 - Kx_2}{L-K}$ $\quad x_1 = 5, x_2 = -4, x = 14$

$L = ? \quad K = ?$

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

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

$\frac{9L}{9L} = \frac{18K}{9L}$ $\quad \frac{1}{2} = \frac{K}{L}$

$2 = 1$

$y = \frac{Ly_1 - Ky_1}{L - K}$ $\quad y_1 = -3, \; y_2 = 4$

$y = -15$

$L = ? \quad K = ?$

$-15 = -3L - 9K$

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

$\frac{-12L}{-12K} = \frac{24K}{12} \quad \frac{2}{1}$

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

The ratio R divide RQ

$= 2 : 1$