b. R divides $\bar{PQ}$ Externally

$x = \frac{Ax_1 + Bx_2}{A + B}$ where $x = 14$, $x_1 = 5$, $x_2 = -4$.

$14 = \frac{A(5) - B(-4)}{A - B}$

$14A - 14B = 5A + 4B$

$14A - 5A = 4B + 14B$

$\frac{9A}{9} = \frac{18B}{9}$

$A = 2B$

$\therefore$ R divides $\bar{PQ}$ Externally $A:B = 1:2$

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

2 a-> P divides $\overline{QR}$ (internally)

$x = \frac{Ax_1 + Bx_2}{A + B}$ where $x = 5$ , $x_1 = -4$, $x_2 = 14$

A and B are imagined ratios

$5 = \frac{A(-4) + B(14)}{A + B}$

$5(A + B) = -4A + 14B$

$5A + 5B = -4A + 14B$

$5A + 4A = 14B - 5B$

$\frac{A}{B} = \frac{9}{9}$

1 : 1

P divides QR in 1 : 1

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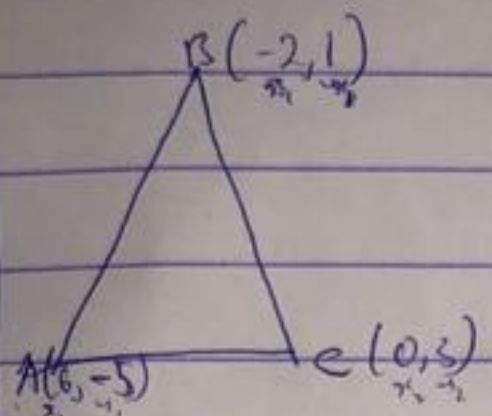
MAT 102

MTS Emeka.

1.




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

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

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

$\overline{AB} = \sqrt{100}$

$\overline{AB} = 10$ units

$\overline{BC} = \sqrt{(0_2 - x_1)^2 + (y_2 - y_1)^2}$

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

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

$\sqrt{4+4}$

$\overline{BC} = \sqrt{8}$ units.

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

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

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

$= \sqrt{36 + 64}$

$\overline{AC} = \sqrt{100}$

$\overline{AC} = 10$units

condition for Isosceles triangle is that two sides must be equal. Therefore, the triangle is an isosceles triangle.