EREH ISHAH UREDO

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MATH 102

A (6, -5)

B (-2, 1)

C (0, 3)

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

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

$= \sqrt{64 + 36}$

$\sqrt{100}$

10

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

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

$= \sqrt{4+4}$

$= \sqrt{8}$

$= 2\sqrt{2}$

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

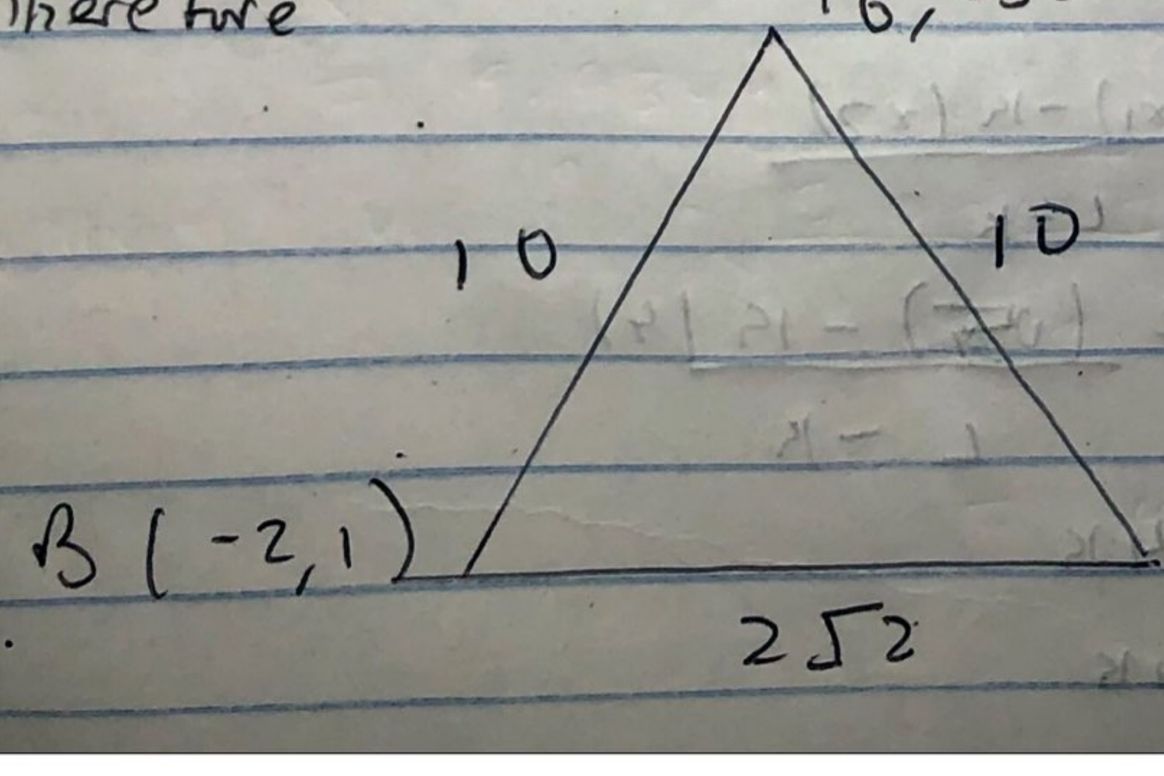
$\sqrt{(0-6)^2 + (3+5)^2}$

$= \sqrt{36 + 64}$

$\sqrt{100}$

10

Therefore



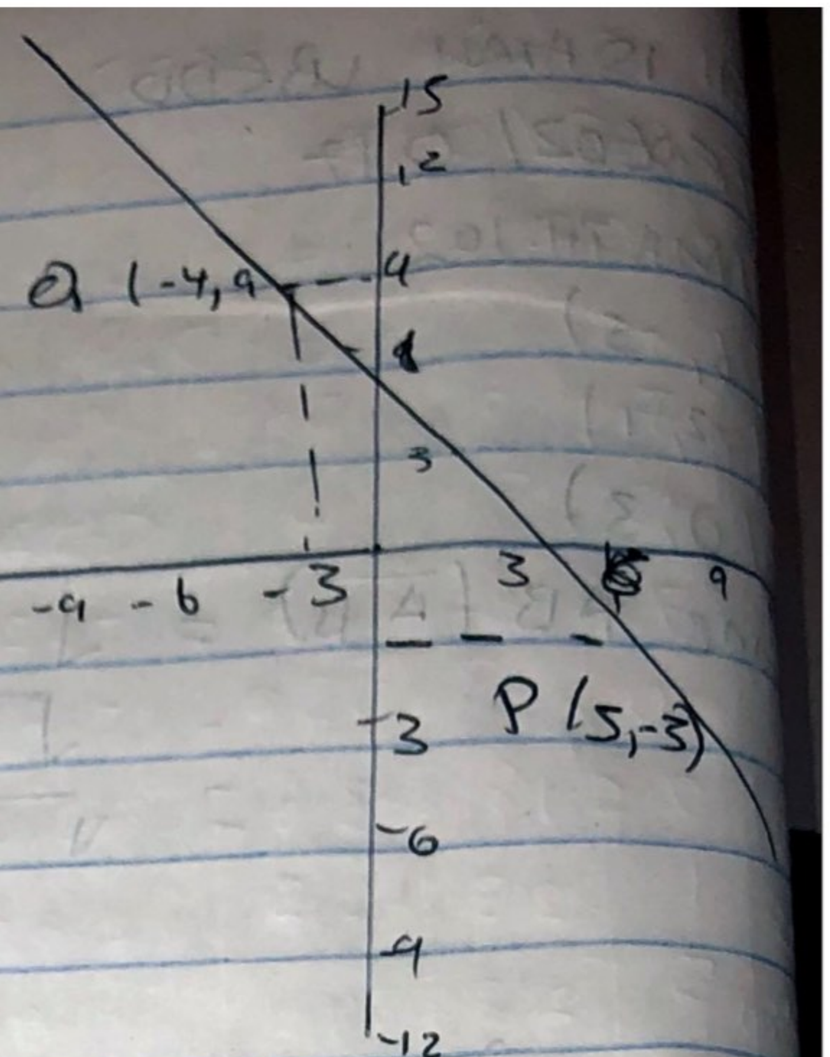
=> Since $A\overline{B} = \overline{A}C = 10$

Its an isoceles triangle

Since only two sides equal

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

x1 = 5 ‖ y1 = -3
x2 = -4 ‖ y2 = 4
x3 = 14 ‖ y3 = -15



1) Divide $\overline{QR}$ internally

x = 5
x1 = -4
x2 = 14

$$x = \frac{L(x_1) + K(x_2)}{L + K}$$

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

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

$$5L + 9L = 14K - 5K$$

$$9L = 9K$$

∴ P divides $\overline{QR}$ in K:L = 1:1

2) Divides $\overline{PQ}$ Externally

x = 14
x1 = 5
x2 = -4

$$x = \frac{L(x_1) - K(x_2)}{L - K}$$

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

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

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

$$9L = 18K$$

∴ R Divides $\overline{PQ}$ Externally in K:L = 2:1