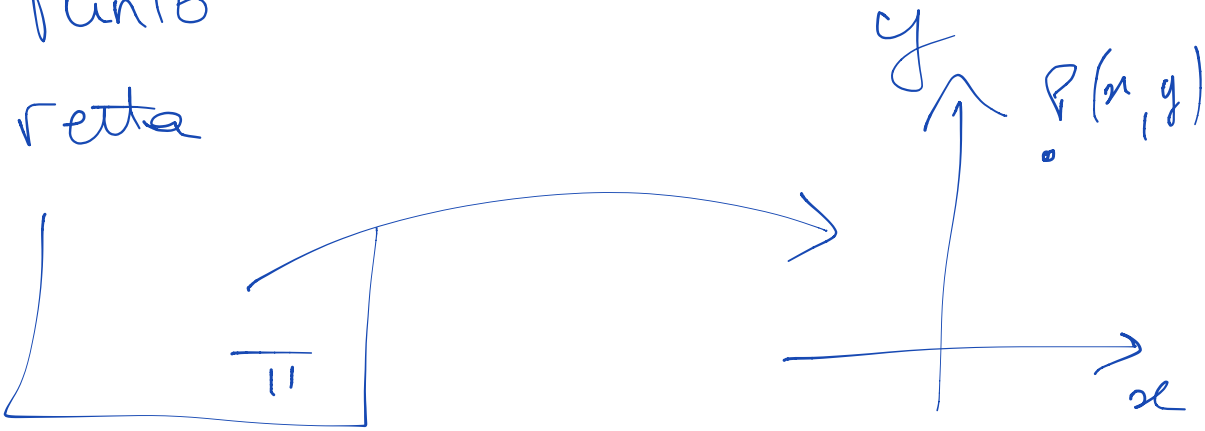
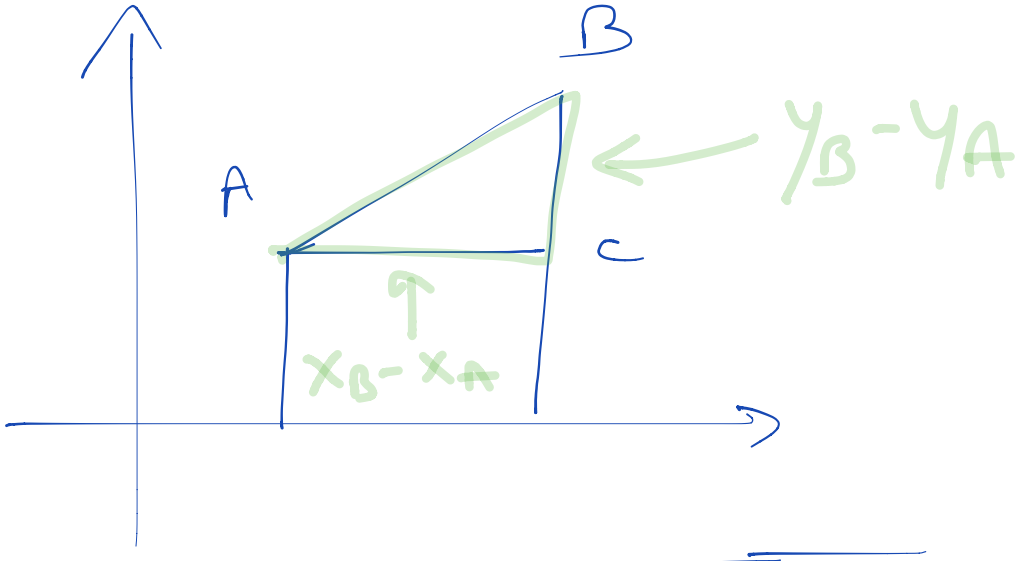
Piano cartesiano

Punto

retta





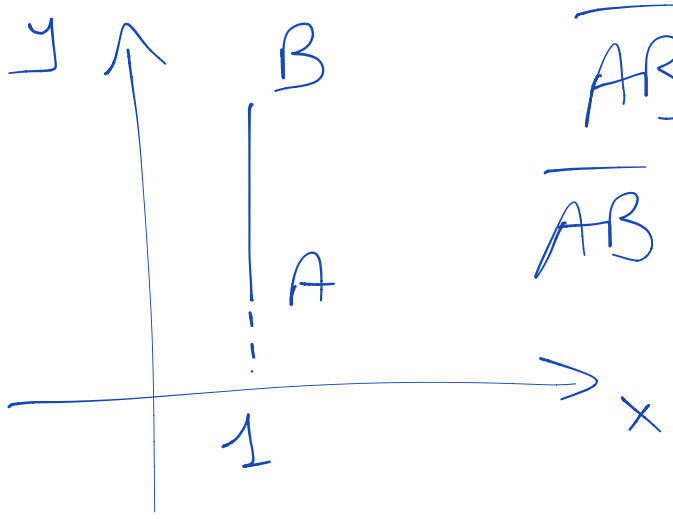
$$\overline{AB} = \sqrt{(x_A - x_B)^2 + (y_A - y_B)^2}$$

$A(2,3) \quad B(-1,5)$

$$\overline{AB} = \sqrt{(2+1)^2 + (3-5)^2} =$$

$$= \sqrt{9+4} = \sqrt{13}$$

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



$$\overline{AB} = 5-2 = 3$$

$$\overline{AB} = y_B - y_A$$

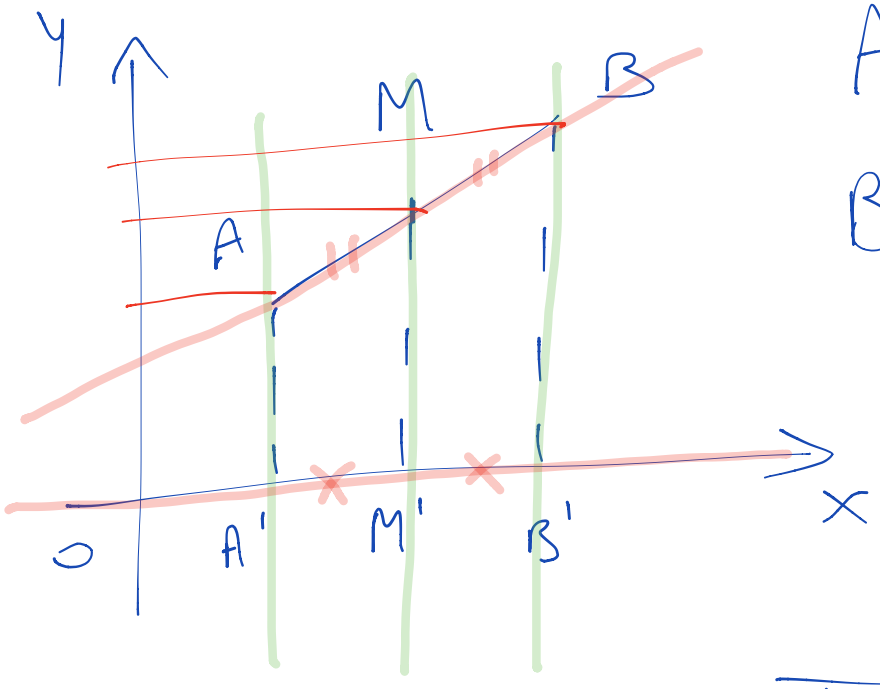
$$\overline{AB} = |2-5| = |-3| = 3$$

$$\overline{AB} = |y_A - y_B|$$

$A(-2;4)$ $B(3;4)$

$$\overline{AB} = |x_A - x_B| = |-2-3| = 5$$

Ponto médio



$A(x_A; y_B)$

$B(x_B; y_B)$

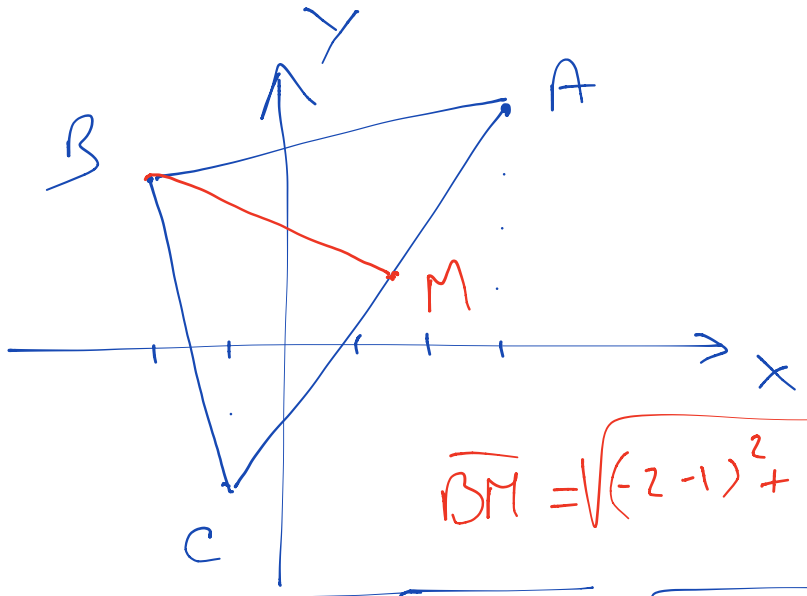
$$\overline{OM'} = \overline{OA'} + \overline{A'M'} = \overline{OA'} + \frac{\overline{A'B'}}{2}$$

$$x_M = x_A + \frac{x_B - x_A}{2} = \frac{2x_A + x_B - x_A}{2} = \frac{x_A + x_B}{2}$$

$$M\left(\frac{x_A+x_B}{2};\frac{y_A+y_B}{2}\right)$$

Problema

$A(3;4)\quad B(-2;3)\quad C(-1;-2)$



$M(1;1)$

$$\overline{BM}=\sqrt{(-2-1)^2+(3-1)^2}=\sqrt{9+4}=\sqrt{13}$$

$$\overline{AB}=\sqrt{(3+2)^2+(4-3)^2}=\sqrt{25+1}=\sqrt{26}$$

$$\overline{AC}=\sqrt{(3+1)^2+(4+2)^2}=\sqrt{16+36}=\sqrt{52}$$

$$\overline{CB}=\sqrt{(-2+1)^2+(3+2)^2}=\sqrt{1+25}=\sqrt{26}$$

isosc.

$$\overline{AB}^2+\overline{CB}^2=\overline{AC}^2 \Rightarrow \text{rectangulo}$$

$$P = \sqrt{26} + \sqrt{52} + \sqrt{26}$$

$$a = \frac{\overline{AB} \cdot \overline{BC}}{2} = \frac{26}{2} = 13$$

$A(x_A, y_A)$ $B(x_B, y_B)$ $C(x_C, y_C)$

$$A = \frac{1}{2} \begin{vmatrix} x_A & y_A & 1 \\ x_B & y_B & 1 \\ x_C & y_C & 1 \end{vmatrix}$$

$$A = \frac{1}{2} \begin{vmatrix} 3 & 4 & 1 \\ -2 & 3 & 1 \\ -1 & -2 & 1 \end{vmatrix} \begin{matrix} 3 & 4 \\ -2 & 3 \\ -1 & -2 \end{matrix} =$$

$$= \frac{1}{2}(9 - 4 + 4 + 3 + 6 + 8) = \frac{26}{2} = 13$$