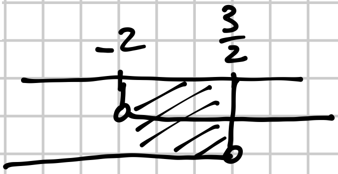
30/9/2021

12 Determina per quali valori di k il punto $P(2k+4, 3-2k)$ appartiene al primo quadrante.

$\left[-2 < k < \frac{3}{2}\right]$

$$\begin{cases} 2K+4>0 \\ 3-2K>0 \end{cases} \qquad \begin{cases} 2K>-4 \\ -2K>-3 \end{cases} \qquad \begin{cases} K>-2 \\ K<\frac{3}{2} \end{cases}$$



$$\boxed{-2<K<\frac{3}{2}}$$

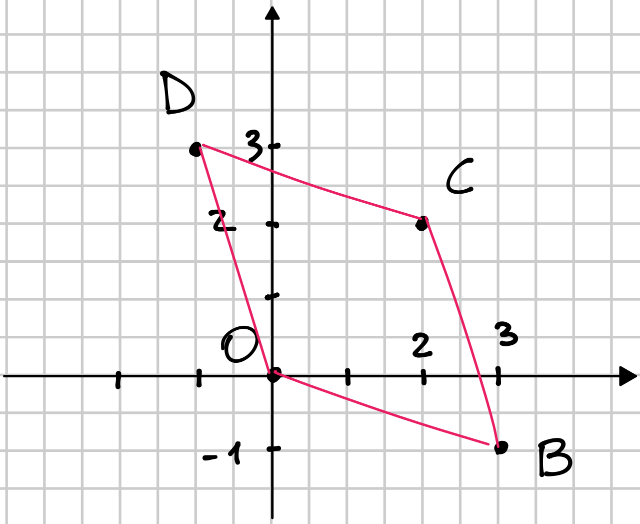
RIPASSO

$ax < b$ → SE $a>0$ ALLORA $x < \frac{b}{a}$

$ax < b$ → SE $a<0$ ALLORA $x > \frac{b}{a}$

BISOGNA GUARDARE IL SEGNO DI a

31 Verifica che i punti $O(0, 0)$, $B(3, -1)$, $C(2, 2)$, $D(-1, 3)$ sono i vertici di un rombo $OBCD$.



$$\overline{OB} = \sqrt{(0-3)^2+(0+1)^2} = \sqrt{10}$$

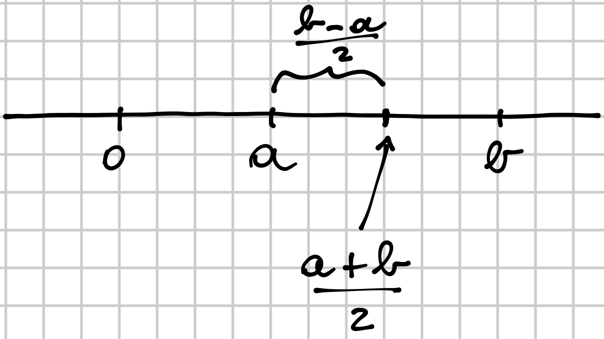
$$\overline{BC} = \sqrt{(3-2)^2+(-1-2)^2} = \sqrt{10}$$

$$\overline{DC} = \sqrt{(2+1)^2+(2-3)^2} = \sqrt{10}$$

$$\overline{OD} = \sqrt{(-1-0)^2+(3-0)^2} = \sqrt{10}$$

OBCD è un rombo poiché ha tutti i lati congruenti

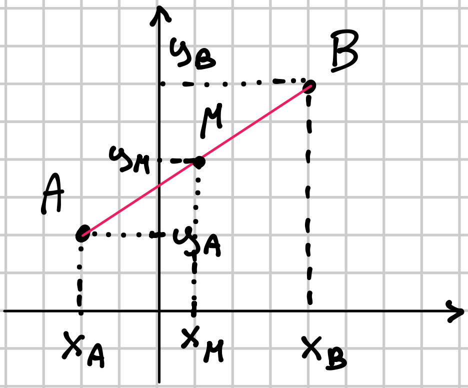
PUNTO MEDIO DI UN SEGMENTO



$a=4$

$b=10$

$$\frac{b-a}{2}+a=\frac{b-a+2a}{2}=\frac{a+b}{2}$$



$A(x_A, y_A)$

$B(x_B, y_B)$

$M(x_M, y_M)$

$$x_M=\frac{x_A+x_B}{2} \qquad y_M=\frac{y_A+y_B}{2}$$

Calcolare il punto medio

65 $A\left(-\frac{1}{2}, 4\right)$ $B\left(\frac{7}{2}, 2\right)$ $\left[\left(\frac{3}{2}, 3\right)\right]$

$$x_M=\frac{-\frac{1}{2}+\frac{7}{2}}{2}=\frac{3}{2} \qquad y_M=\frac{4+2}{2}=3 \qquad M\left(\frac{3}{2}, 3\right)$$

72 Determina l'estremo B del segmento AB, noto l'estremo $A(-1, 3)$ e il punto medio $M(4, 5)$ di AB. $[B(9, 7)]$

$A(-1, 3)$ $M(4, 5)$ $x_B=?$ $y_B=?$

$$\frac{x_A+x_B}{2}=x_M \qquad \frac{-1+x_B}{2}=4 \qquad -1+x_B=8 \qquad x_B=9$$

$$\frac{y_A+y_B}{2}=y_M \qquad \frac{3+y_B}{2}=5 \qquad 3+y_B=10 \qquad y_B=7$$

$$\boxed{B(9, 7)}$$