

26/09/2018

$$\sqrt{x^2 + 1} < x + 2$$

$$\sqrt{P(x)} < Q(x) \Leftrightarrow$$

$$\begin{cases} x^2 + 1 \geq 0 \\ x + 2 > 0 \\ x^2 + 1 < (x + 2)^2 \end{cases}$$

$$\begin{cases} P(x) \geq 0 \\ Q(x) > 0 \\ P(x) < Q(x)^2 \end{cases}$$

$$x^2 + 1 = 0$$

$$\Delta = 0 - 4 < 0$$

13



$$x > -3/4$$

$$\begin{cases} x > -2 \\ x + 1 < x + 4 + 4x \\ 4x > -3 \quad x > -3/4 \end{cases}$$

$$\sqrt{P(x)} > Q(x)$$

$$\begin{cases} P(x) \geq 0 \\ Q(x) \leq 0 \end{cases}$$

$$\vee \begin{cases} \cancel{P(x) \geq 0} \\ Q(x) \geq 0 \\ P(x) > Q(x)^2 \end{cases}$$

(14)

$$\sqrt{x^2 - 2x - 8} > x + 1$$

$$\Delta = 4 + 32 = 36$$

$$x = \frac{2 \pm 6}{2} = \begin{cases} 4 \\ -2 \end{cases}$$

$$x^2 - 2x - 8 \geq 0$$

$$x + 1 < 0$$

$$x \leq -2 \vee x \geq 4 \quad \checkmark$$

$$x < -1$$

$$\boxed{x \leq -2}$$

$\vee$

$$\begin{cases} x + 1 \geq 0 \\ \cancel{x^2 - 2x - 8} > \cancel{x + 1}^2 \end{cases}$$

$$x \geq -1$$

$$-4x > 9 \rightarrow x < -\frac{9}{4}$$

$$-\frac{9}{4} \quad -1$$

$$\boxed{\emptyset}$$

$$\left\{ \begin{array}{l} x \leq -2 \vee x \geq 4 \\ x < -1 \end{array} \right.$$

~~answer~~
-2

$$\boxed{x \leq -2}$$

max		min
max		min
max		min
-2	-1	4

max		min
max		min
max		min
-9/4	-1	

$$\sqrt{x+1} + \sqrt{x} > \sqrt{x+3}$$

$$\begin{cases} x \geq -1 \\ x \geq 0 \\ x \geq -3 \end{cases}$$

$$x \geq 0$$

$$2\sqrt{x(x+1)} > 2-x$$

$$\begin{cases} x+1 \geq 0 \\ x \geq 0 \\ x+3 \geq 0 \end{cases}$$

$$\begin{aligned} 3x^2 + 8x - 4 &> 0 \\ \Delta = 64 + 48 = 112 = 4 \cdot 28 = 16 \cdot 7 \\ x = \frac{-8 \pm 4\sqrt{7}}{6} = \frac{-4 \pm 2\sqrt{7}}{3} \end{aligned}$$

$$x+1 + x+2 > x+3$$

$$\begin{cases} x(x+1) \geq 0 \\ 2-x < 0 \end{cases} \quad \vee \quad \begin{cases} 2-x \geq 0 \\ 4x(x+1) \geq 0 \end{cases}$$

$$\begin{cases} x \leq -1 \vee x \geq 0 \\ x > 2 \end{cases} \quad \vee \quad \begin{cases} x \leq 2 \\ 4x^2 + 4x > 4 + x^2 - 4 \end{cases}$$

$$\begin{aligned} & \text{Nette pattern} \\ & \begin{array}{c|c|c} -1 & 0 & 2 \end{array} \\ & x > 2 \end{aligned}$$

$$\begin{aligned} & \text{Nette pattern} \\ & \begin{array}{c|c|c} -1 & 0 & 2 \end{array} \\ & x > 2 \end{aligned}$$

$$\begin{aligned} & \text{Nette pattern} \\ & \begin{array}{c|c|c} -1 & 0 & 2 \end{array} \\ & x > 2 \end{aligned}$$

~~xxxx~~

$$\frac{-4-2\sqrt{7}}{3}$$

$$\frac{-4+2\sqrt{7}}{3}$$

2

$$x < \frac{-4-2\sqrt{7}}{3}$$

$$x > \frac{-4+2\sqrt{7}}{3}$$

16

~~xxxxxxxx~~

~~xxxx~~

~~xxxx~~

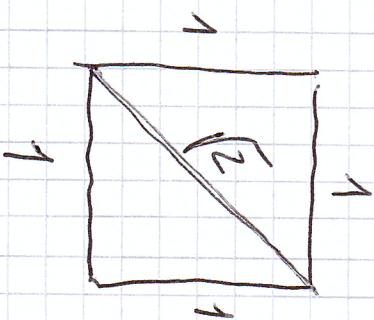
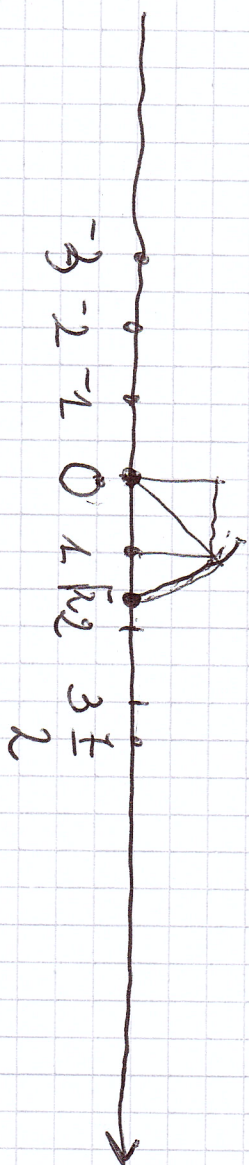
$$\frac{-4-2\sqrt{7}}{3}$$

0

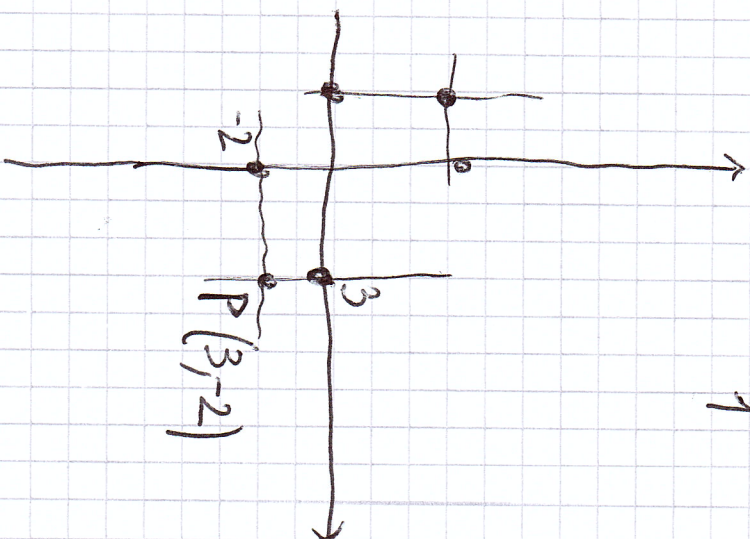
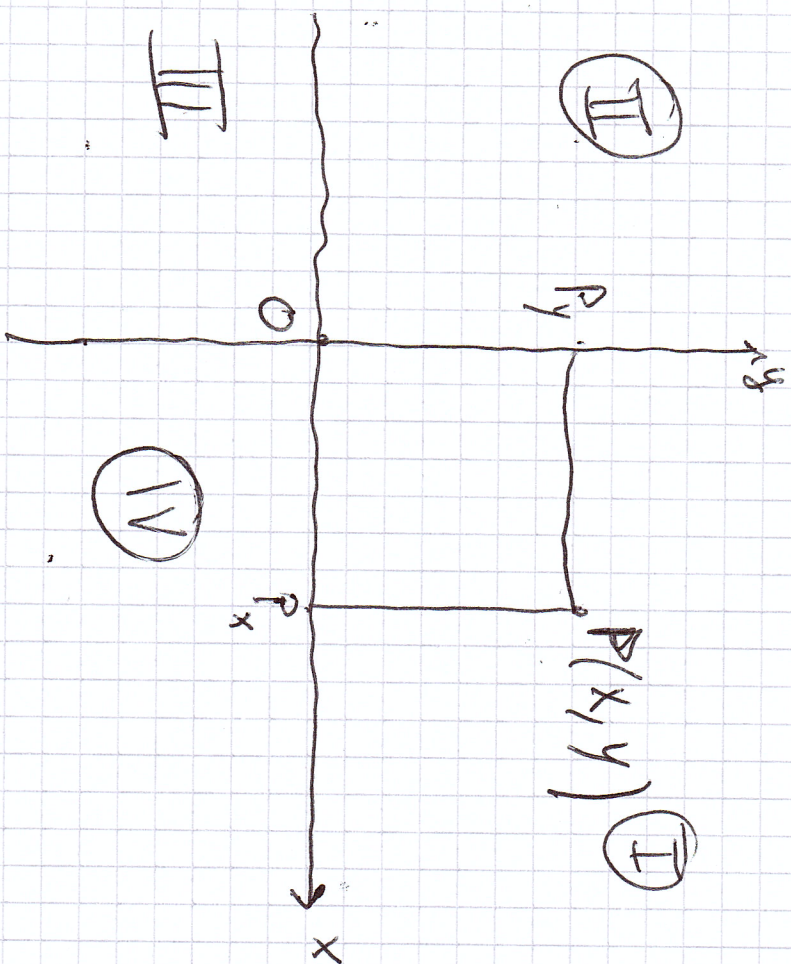
$$\frac{-4+2\sqrt{7}}{3}$$

$$x > \frac{-4+2\sqrt{7}}{3}$$

GEOMETRIA ANALITICA



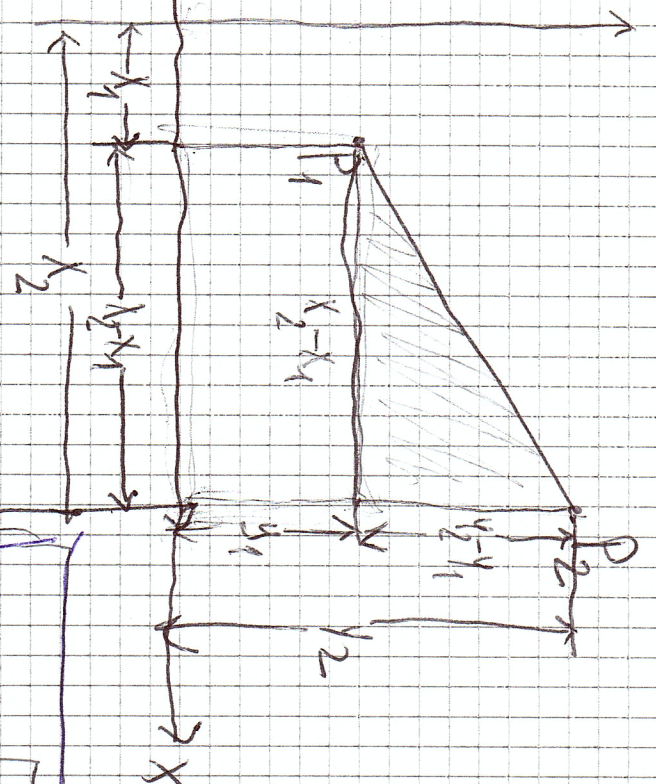
17



$$\sqrt{x^2} = |x|$$

$$\sqrt{(-2)^2} = |-2| = 2$$

$$\sqrt{3^2} = |3| = 3$$



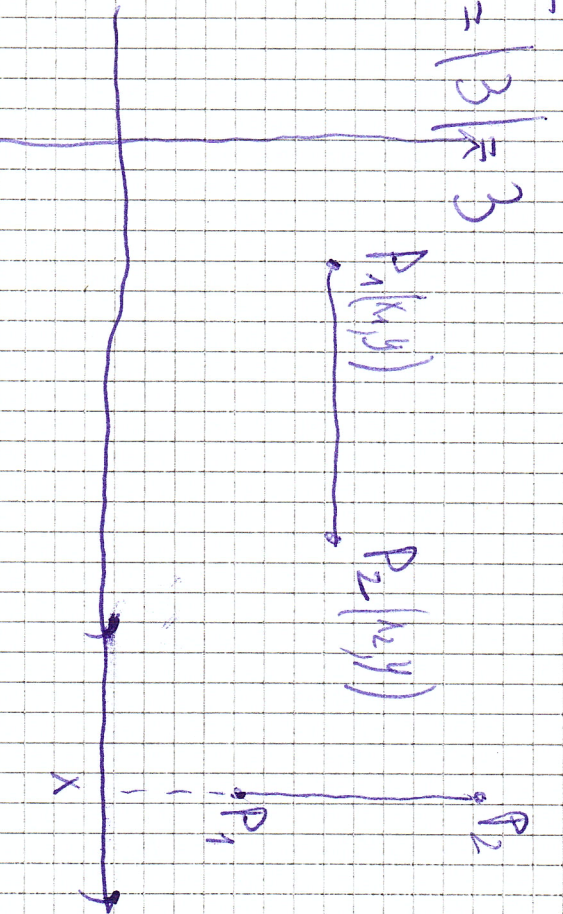
$$P_1(x_1, y_1)$$

$$P_2(x_2, y_2)$$

$$\overline{P_1 P_2} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

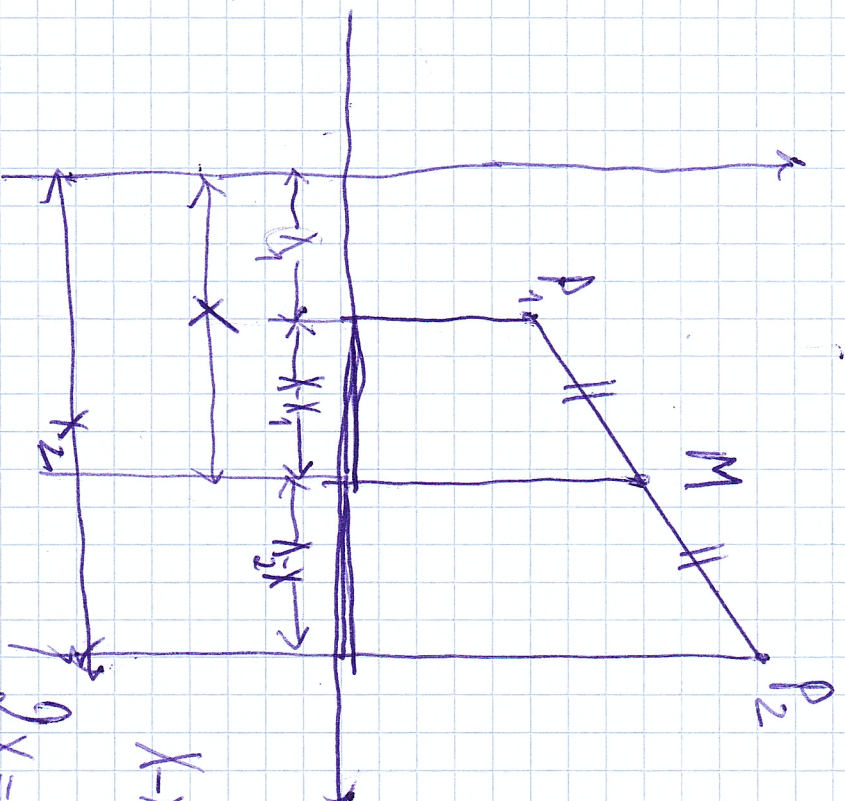
$$\overline{P_1 P_2} = \sqrt{(x_2 - x_1)^2} = |x_2 - x_1|$$

$$\overline{P_1 P_2} = \sqrt{(y_2 - y_1)^2} = |y_2 - y_1|$$

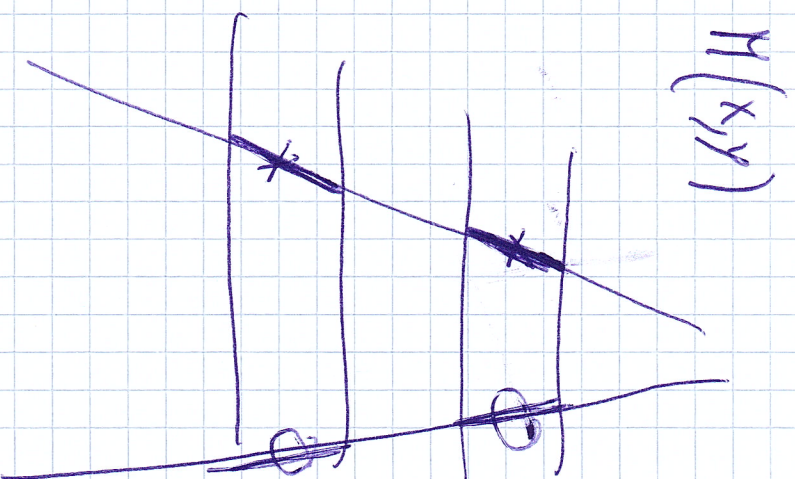


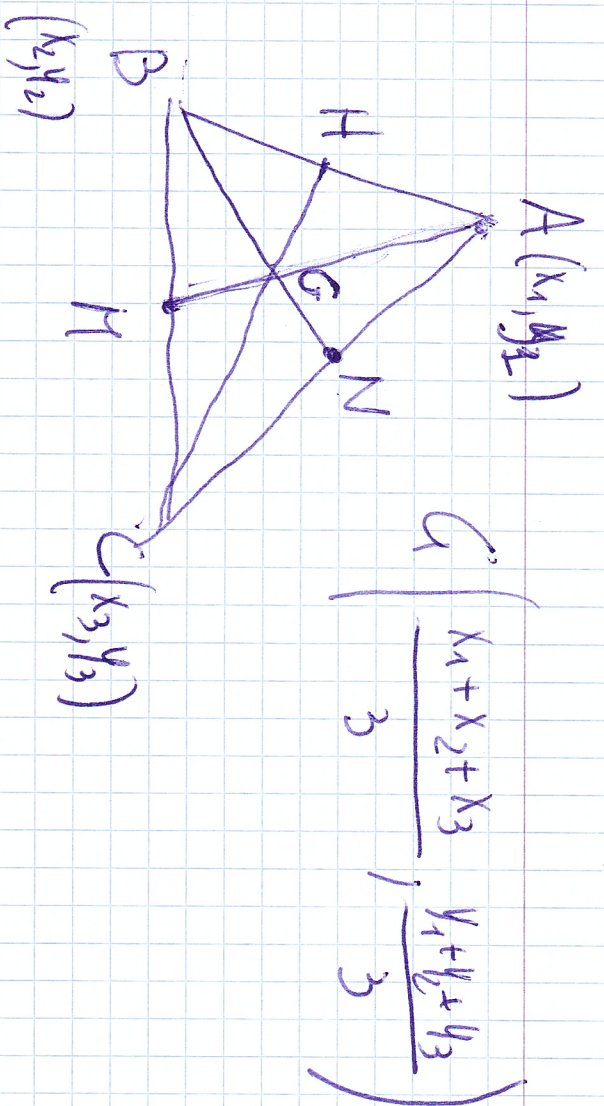
PUNTO MEDIO DI UN SEGMENTO

1/19



$$\begin{aligned} x - x_1 &= x_2 - x \\ 2x &= x_1 + x_2 \\ x &= \frac{x_1 + x_2}{2} \\ y &= \frac{y_1 + y_2}{2} \end{aligned}$$





LA RETTA

$$ax + by + c = 0$$

$$ax + by + c = 0$$

implicita

(21

1) $c = 0$ $ax + by = 0$ passes thru $(0,0)$

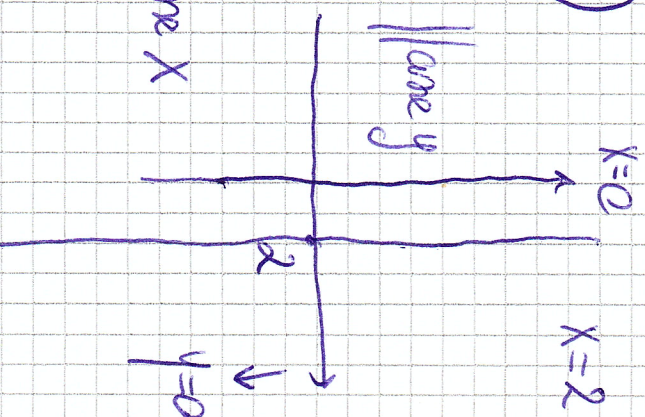
2) $b = 0$ ($a \neq 0$) $ax + c = 0$

$$x = -\frac{c}{a}$$

3) $a = 0$ ($b \neq 0$) $by + c = 0$ $y = -\frac{c}{b}$ $\parallel$ axis x

$$2x + y - 1 = 0$$

$$4x + 2y - 2 = 0$$



$$ax + by + c = 0$$

$$by = -ax - c$$

$$y = \left(-\frac{a}{b}\right)x - \frac{c}{b}$$

"m" "q"

$$b \neq 0$$

explicita

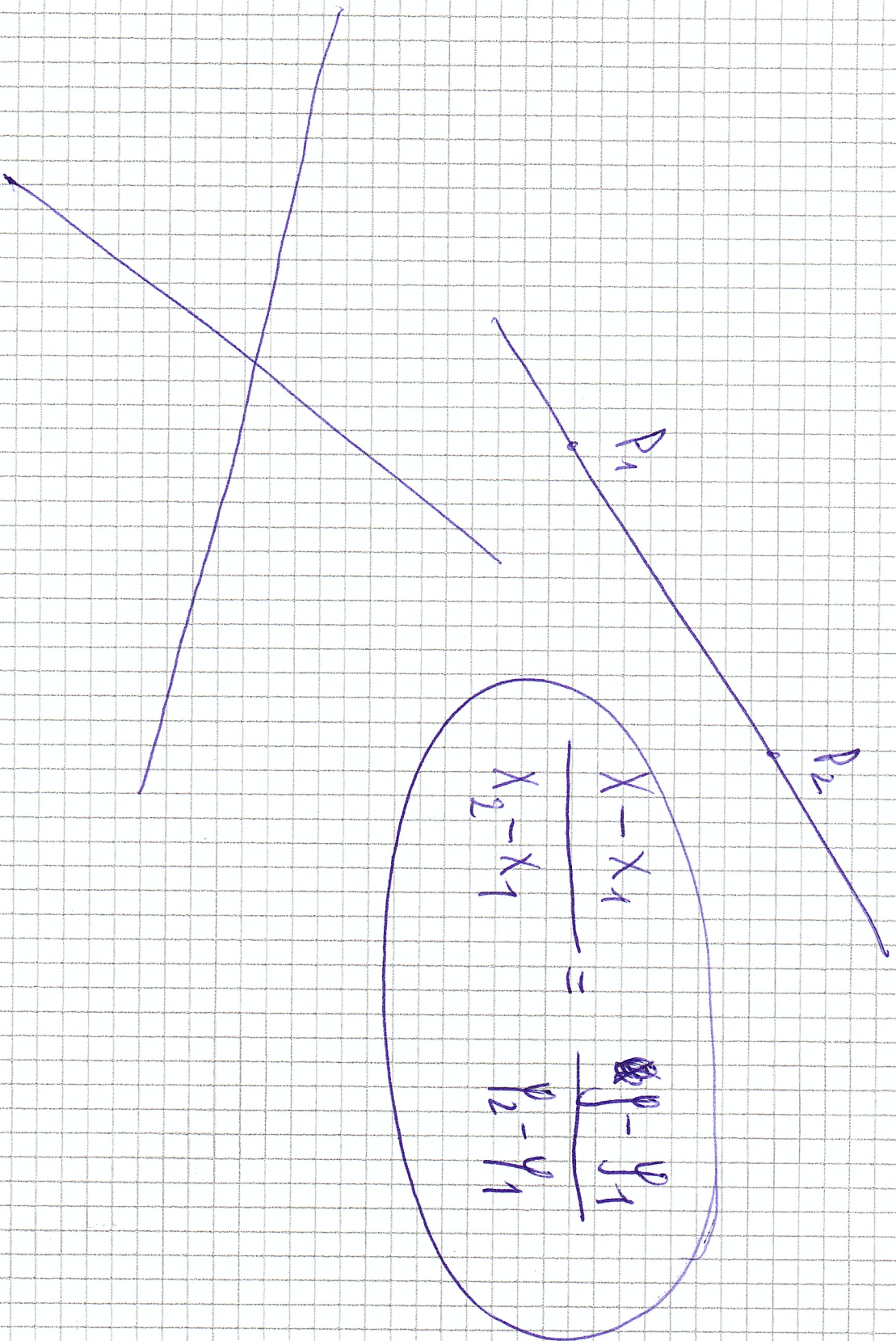
$$y = mx + q$$

because of the vertical // any

$P_1(x_1, y_1)$

$P_2(x_2, y_2)$

LL5



$$\begin{cases} ax+by+c=0 \\ a_1x+b_1y+c_1=0 \end{cases}$$

DET

$$\frac{a}{a_1} \neq \frac{b}{b_1}$$

IND.

$$\frac{a}{a_1} = \frac{b}{b_1} = \frac{c}{c_1}$$

IMP.

$$\frac{a}{a_1} = \frac{b}{b_1} \neq \frac{c}{c_1}$$