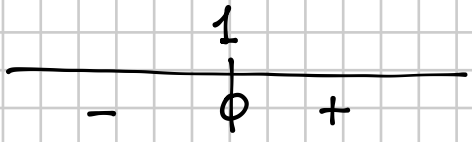
22/4/2021

325 $\begin{cases} |x-1|-y=-3 \\ 2|x-1|+y=5 \end{cases}$

Studio il segno di $x-1$

$x-1>0 \qquad x>1$



(1) $\begin{cases} x \le 1 \\ -(x-1)-y=-3 \\ -2(x-1)+y=5 \end{cases}$ V (2) $\begin{cases} x \ge 1 \\ x-1-y=-3 \\ 2(x-1)+y=5 \end{cases}$

(1) $\begin{cases} x \le 1 \\ -x+1-y=-3 \\ -2x+2+y=5 \end{cases}$ $\begin{cases} x \le 1 \\ -x-y=-4 \\ -2x+y=3 \end{cases}$

$-3x = -1$

$\begin{cases} x \le 1 \\ x=\frac{1}{3} \leftarrow \text{ACCETTABILE PERCHÉ } \frac{1}{3} \le 1 \\ y=2x+3=2\cdot\frac{1}{3}+3= \end{cases}$

$=\frac{2}{3}+3=\frac{11}{3}$

$\begin{cases} x=\frac{1}{3} \\ y=\frac{11}{3} \end{cases}$

(2) $\begin{cases} x \ge 1 \\ x-y=-2 \\ 2x+y=7 \end{cases}$ $\begin{cases} x \ge 1 \\ x=\frac{5}{3} \end{cases}$ ok $\begin{cases} x=\frac{5}{3} \\ y=\frac{11}{3} \end{cases}$

$3x = 5$

$y=x+2=\frac{5}{3}+2=$

$=\frac{11}{3}$

$\left(\frac{1}{3},\frac{11}{3}\right)$ V $\left(\frac{5}{3},\frac{11}{3}\right)$

325 $\begin{cases} |x-1|-y=-3 \\ 2|x-1|+y=5 \end{cases}$

RISOLUZIONE ALTERNATIVA

$$\begin{cases} y=|x-1|+3 \\ 2|x-1|+|x-1|+3=5 \end{cases} \qquad \begin{cases} y=|x-1|+3 \\ 3|x-1|=2 \end{cases}$$

$$\begin{cases} y=\frac{2}{3}+3=\frac{11}{3} \\ |x-1|=\frac{2}{3} \end{cases} \qquad \begin{cases} y=\frac{11}{3} \\ |x-1|=\frac{2}{3} \end{cases} \Rightarrow \begin{cases} y=\frac{11}{3} \\ x-1=\pm\frac{2}{3} \end{cases}$$

$$\begin{cases} y=\frac{11}{3} \\ x-1=-\frac{2}{3} \end{cases} \vee \begin{cases} y=\frac{11}{3} \\ x-1=\frac{2}{3} \end{cases}$$

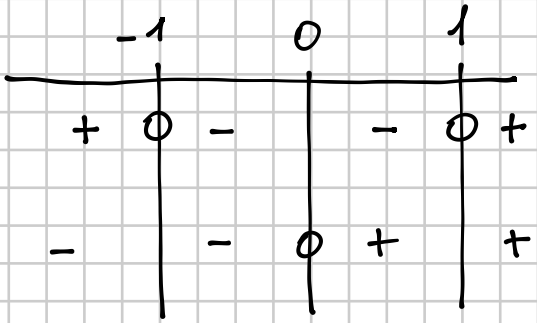
$$\begin{cases} y=\frac{11}{3} \\ x=-\frac{2}{3}+1 \end{cases} \vee \begin{cases} y=\frac{11}{3} \\ x=\frac{2}{3}+1 \end{cases}$$

$$\boxed{\begin{cases} x=\frac{1}{3} \\ y=\frac{11}{3} \end{cases} \vee \begin{cases} x=\frac{5}{3} \\ y=\frac{11}{3} \end{cases}}$$

326 $\begin{cases} x+y-|x^2-1|=-9 \\ |x|-y=1 \end{cases}$

$x^2-1>0 \Rightarrow \quad x<-1 \quad \vee \quad x>1$

$x>0$



① $\begin{cases} x \le -1 \\ x+y-(x^2-1)=-9 \\ -x-y=1 \end{cases}$

② $\begin{cases} -1 \le x \le 0 \\ x+y+x^2-1=-9 \\ -x-y=1 \end{cases}$

③ $\begin{cases} 0 \le x \le 1 \\ x+y+x^2-1=-9 \\ x-y=1 \end{cases}$

④ $\begin{cases} x \ge 1 \\ x+y-(x^2-1)=-9 \\ x-y=1 \end{cases}$

① $\begin{cases} x \le -1 \\ -x^2+1+y+x=-9 \\ y=-x-1 \end{cases}$ $\begin{cases} x \le -1 \\ -x^2+1-x-1+x+9=0 \\ y=-x-1 \end{cases}$

$\begin{cases} x \le -1 \\ x^2=9 \\ y=-x-1 \end{cases}$ $\begin{cases} x \le -1 \\ x=\pm 3 \\ y=3-1=2 \end{cases}$ -3 ok, $+3$ N.A.

$\begin{cases} x=-3 \\ y=2 \end{cases}$

② $\begin{cases} -1 \le x \le 0 \\ x+y+x^2-1=-9 \\ -x-y=1 \end{cases}$ $\begin{cases} -1 \le x \le 0 \\ \cancel{x}-\cancel{x}-1+x^2-1=-9 \\ y=-x-1 \end{cases}$

$\begin{cases} -1 \le x \le 0 \\ x^2=-7 \quad \text{IMPOSSIBILE} \quad \emptyset \\ y=-x-1 \end{cases}$

③ $\begin{cases} 0 \le x \le 1 \\ x+y+x^2-1=-9 \\ x-y=1 \end{cases}$ $\begin{cases} 0 \le x \le 1 \\ x+x-1+x^2-1+9=0 \\ y=x-1 \end{cases}$

$\begin{cases} 0 \le x \le 1 \\ x^2+2x+7=0 \quad \frac{\Delta}{4}=1-7<0 \quad \text{IMPOSSIBILE} \quad \emptyset \\ y=x-1 \end{cases}$

④ $\begin{cases} x \ge 1 \\ x+y-(x^2-1)=-9 \\ x-y=1 \end{cases}$ $\begin{cases} x \ge 1 \\ x+x-\cancel{1}-x^2+\cancel{1}=-9 \\ y=x-1 \end{cases}$

$\begin{cases} x \ge 1 \\ x^2-2x-9=0 \quad \frac{\Delta}{4}=1+9=10 \quad x=1\pm\sqrt{10} = \begin{cases} 1-\sqrt{10} \text{ N.A. perché} < 1 \\ 1+\sqrt{10} \text{ OK} \end{cases} \\ y=x-1 \end{cases}$

$\begin{cases} x=1+\sqrt{10} \\ y=\sqrt{10} \end{cases}$

$\boxed{(1+\sqrt{10}, \sqrt{10}) \vee (-3, 2)}$