DISEQUAZIONI DI SECONDO GRADO INTERE

$>$ $<$

$\geq$ $\leq$

$$\underbrace{ax^2+bx+c} \gtreqless 0$$

y

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$a > 0$

$a < 0$

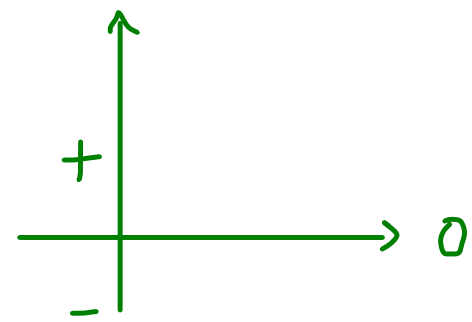
$$\begin{cases} y = ax^2 + bx + c \\ y = 0 \end{cases}$$

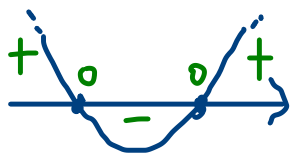
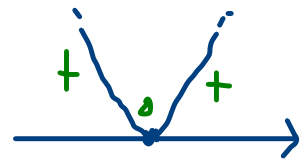
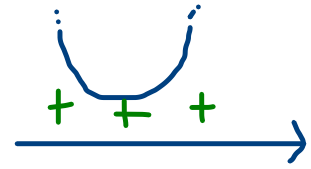
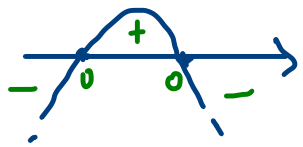
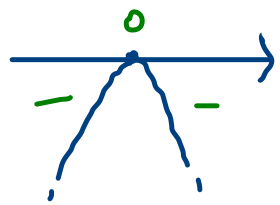
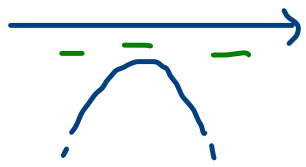
$$ax^2 + bx + c = 0$$

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\Delta = b^2 - 4ac$$

ax^2+bx+c

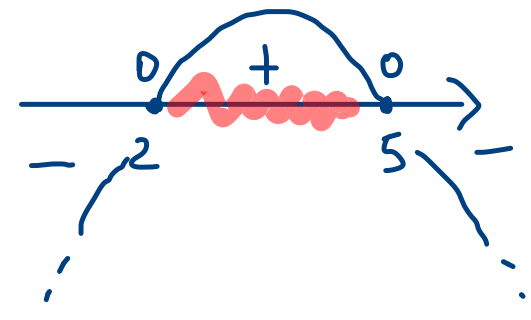


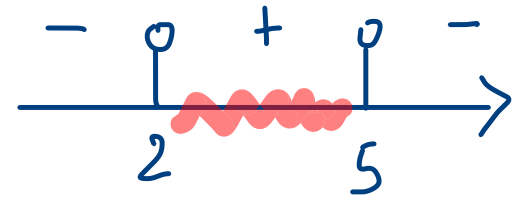
		2 SOL. DIST. $\Delta > 0$	1 SOL. $\Delta = 0$	$\emptyset$ $\Delta < 0$
$\cup$	$a > 0$			
$\cap$	$a < 0$			

$$-x^2+7x-10>0$$

$$\Delta = 49-40=9$$

$$x_{1,2}=\frac{-7\pm 3}{-2}=\begin{cases}2\\5\end{cases}$$





$2<x<5$

≥ 0 $\quad 2\leqq x\leqq 5$

<0 $\quad x<2 \cup x>5$

$\leqslant 0$ $\quad x\leqslant 2 \cup x\geqslant 5$

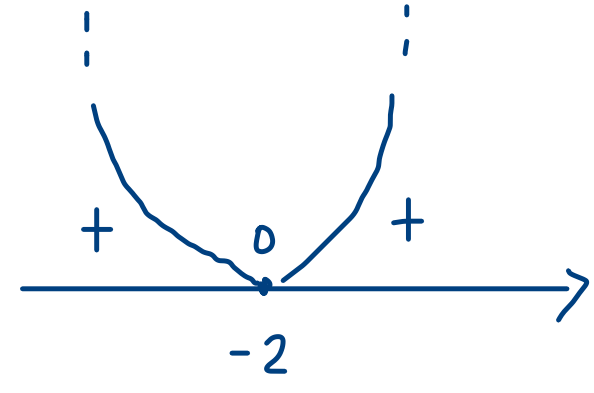
$$\frac{1}{4}x^2 + x + 1 \leq 0$$

$$4 \cdot \frac{x^2 + 4x + 4}{4} \leq 0 \cdot 4$$

$$x^2 + 4x + 4 \leq 0$$

$$\Delta = 16 - 16 = 0$$

$$x_{1,2} = \frac{-4}{2} = -2$$



$\leq 0 \rightarrow \quad x = -2$

$< 0 \rightarrow \quad \emptyset$

$\geq 0 \rightarrow \quad \mathbb{R} \qquad \forall x \in \mathbb{R}$

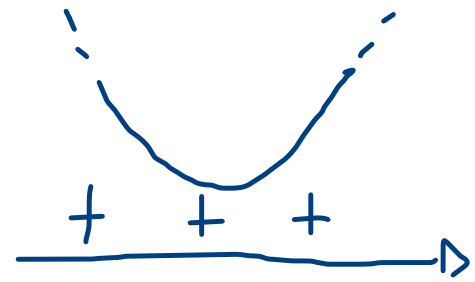
$> 0 \rightarrow \quad x \neq -2 \qquad x < -2 \cup x > -2$

$\mathbb{R} - \{-2\}$

$$x + x^2 \leq -1$$

$$x^2 + x + 1 \leq 0$$

$$\Delta = 1 - 4 = -3$$



$\leq 0 \rightarrow \emptyset$ IMP $\nexists x \in \mathbb{R}$

$< 0 \rightarrow \emptyset$

$\geq 0 \rightarrow \mathbb{R}$

$> 0 \rightarrow \mathbb{R}$