

EQUAZIONI CON MODULO

Definizione di modulo:

$$|a| \begin{cases} a & \text{se } a \geq 0 \\ -a & \text{se } a < 0 \end{cases}$$

Casi particolari:

1) $|f(x)| = K$ $K \in \mathbb{R}$

a $|f(x)| = -K$ $|2x - 4| = -6$ **IMPOSIBILE**

b $|f(x)| = 0$ $|2x - 4| = 0$ $2x - 4 = 0$

c $|f(x)| = K$ $|2x - 4| = 6$ $2x - 4 = \pm 6$

2) $|f(x)| = g(x)$

$|2x - 4| = x + 6$ $2x - 4 > 0$ $x > 2$

$$\begin{cases} x \geq 2 \\ 2x - 4 = x + 6 \end{cases} \quad \begin{cases} x < 2 \\ 2x - 4 = -(x + 6) \end{cases}$$

3) $|f(x)| = |g(x)|$

$|2x - 4| = |x + 6|$ $2x - 4 = \pm(x + 6)$

CASI GENERALI

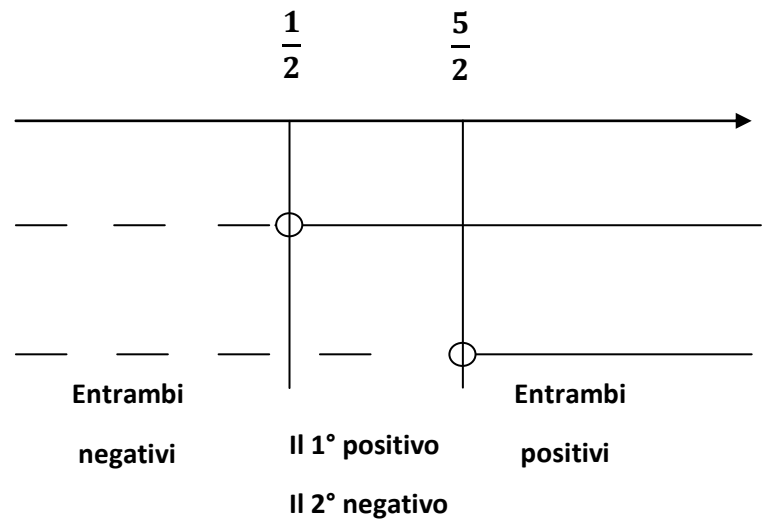
$$|2x - 1| - |2x - 5| = 2x + 3$$

$$1) \quad 2x - 1 \geq 0$$

$$x \geq \frac{1}{2}$$

$$2) \quad 2x - 5 \geq 0$$

$$x \geq \frac{5}{2}$$



$$1^\circ \text{ caso} \quad \begin{cases} x < \frac{1}{2} \\ -2x + 1 - (-2x + 5) = 2x + 3 \end{cases}$$

$$2^\circ \text{ caso} \quad \begin{cases} \frac{1}{2} < x < \frac{5}{2} \\ 2x - 1 - (-2x + 5) = 2x + 3 \end{cases}$$

$$3^\circ \text{ caso} \quad \begin{cases} x > \frac{5}{2} \\ 2x - 1 - (2x - 5) = 2x + 3 \end{cases}$$