EQUAZIONI FATTORIZZATE

$f_1(x) \cdot f_2(x) \cdots \cdot f_k(x) = 0 \rightarrow$

$f_1(x) = 0 \rightarrow x = x_1$

$f_2(x) = 0 \rightarrow x = x_2$

$\cdots$

$f_k(x) = 0 \rightarrow x = x_k$

$x \cdot (2x+1)(3x-5) = 0$

$x = 0$

$2x + 1 = 0 \rightarrow 2x = -1 \rightarrow x = -1/2$

$3x - 5 = 0 \rightarrow 3x = 5 \rightarrow x = 5/3$

$3x^3 - 2x^2 - x = 0$

$x \cdot (3x^2 - 2x - 1) = 0 \qquad x = 0$

$\downarrow$

$P = 3 \cdot (-1) = -3$

$S = -2 \rightarrow -3, +1$

$3x^2 - 3x + x - 1 = 0$

$3x(x-1) + 1 \cdot (x-1) = 0$

$(x-1)(3x+1) = 0$

$\downarrow \qquad \downarrow$

$x = 1 \qquad x = -1/3$

$(x+5)^2 > 0 \qquad \forall x \in R \quad (x \neq -5)$

$(x+5)^2 > 0 \quad \forall x \in R \quad (x \neq -5)$

$\downarrow$

$x+5=0 \rightarrow x=-5$

$(x+3)^2 > 0 \rightarrow \forall x \in R \quad (x=-3)$

$(2x-3)^2 < 0 \rightarrow$ imp. $\nexists x \in R$

quadrato neg — NON esiste x REALE

$(2x-3) \leq 0 \rightarrow <0$ MAI $\emptyset$

$\searrow =0 \rightarrow 2x-3=0 \quad x=3/2$

$x^3 - 7x^2 + 10x < 0$

$x \cdot (x^2 - 7x + 10) < 0$

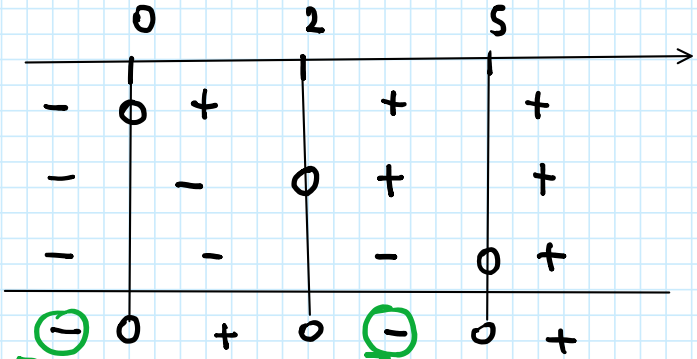
$x \cdot (x-2)(x-5) < 0$

Indipendentemente dal simbolo <0; >0
Il i fattori li studi SEMPRE MAGGIORI DI ZERO!!!!

$x > 0$

$x-2 > 0 \rightarrow x > 2$

$x-5 > 0 \rightarrow x > 5$



$x \cdot (x-2)(x-5) < 0$

$x < 0 \vee 2 < x < 5$

FRATTA

$$\frac{1}{x-1} - \frac{x}{x+2} + \frac{x^2+x+1}{x^2+x-2} = 0$$

$x^2+x-2 \rightarrow (x+2)(x-1)$

$$\frac{1\cdot(x+2) - x\cdot(x-1) + (x^2+x+1)}{(x+2)(x-1)} = 0$$

N: $x+2 - x^2+x + x^2+x+1$

$= 3x+3 = 3\cdot(x+1)$

$$\frac{3\cdot(x+1)}{(x+2)(x-1)} = 0$$

Den $\neq 0$

C.E. condizioni di Esist.

$x+2 \neq 0 \rightarrow x \neq -2$

$x-1 \neq 0 \rightarrow x \neq 1$

$$\frac{3\cdot(x+1)}{(x+2)(x-1)} = 0$$

$$\frac{3\cdot(x+1)}{(x+2)(x-1)} = 0$$

$$3\cdot(x+1) = 0$$

$$x = -1$$

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

$$x^2+x-2 \rightarrow (x+2)(x-1)$$

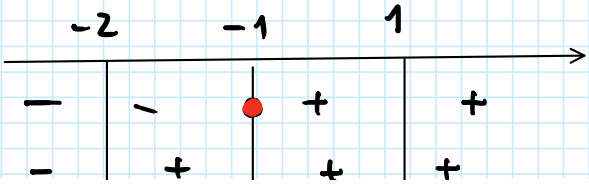
$$\frac{3\cdot(x+1)}{(x+2)(x-1)} \leq 0$$

Indipendentemente dal simbolo <0; >0
Il i fattori li studi SEMPRE MAGGIORI DI ZERO!!!!
Se l'equazione include anche l'uguale
NUMERATORE lo mettiamo
DENOMINATORE NON lo mettiamo

$$\frac{3\cdot(x+1)}{(x+2)(x-1)} \leq 0$$

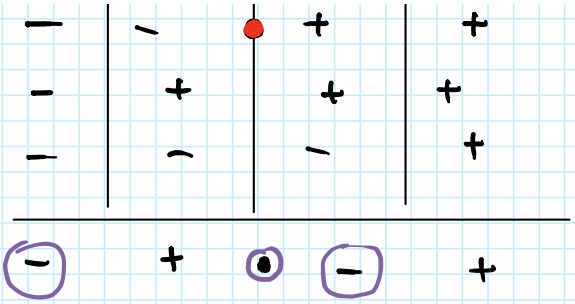
$$x+1 \geq 0 \rightarrow x \geq -1$$

$$x+2 > 0 \rightarrow x > -2$$



$x + 2 > 0 \rightarrow x > -2$

$x - 1 > 0 \rightarrow x > 1$



$S: \; x < -2 \vee -1 \leq x < 1$