

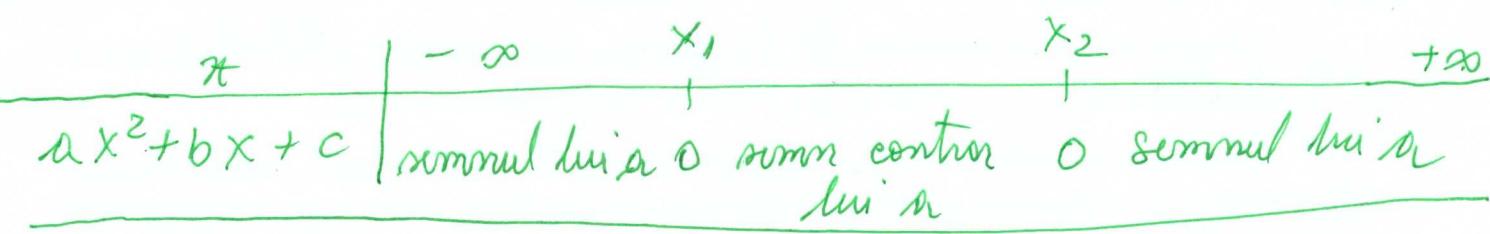
# INECUAȚII DE FORMA

pag 1

$a x^2 + b x + c \leq 0$  ( $\geq, <, >$ ) unde  $a, b, c \in \mathbb{R}$   
cu  $a \neq 0$

Teorie

$$\boxed{\Delta > 0}$$



EX 1 Rezolvă inecuație:

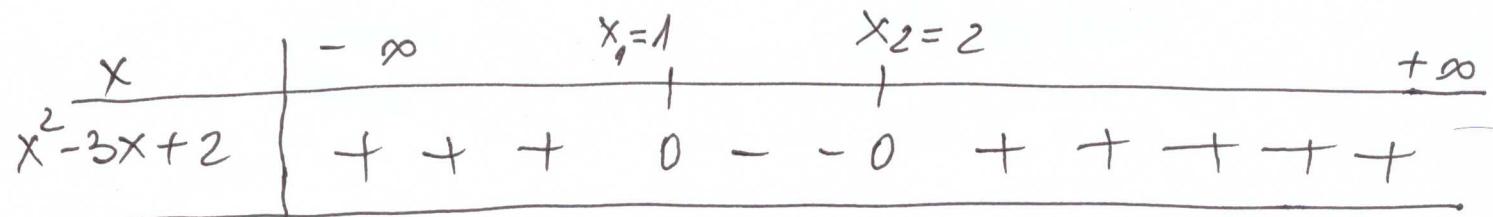
10)  $x^2 - 3x + 2 \geq 0$

$$1 \cdot x^2 + (-3) \cdot x + 2 = 0 ; a=1 ; b=-3 , c=2$$

$$\Delta = b^2 - 4ac = (-3)^2 - 4 \cdot 1 \cdot 2 = 9 - 8 = 1$$

$$x_{1,2} = \frac{-b \pm \sqrt{\Delta}}{2 \cdot a} = \frac{-(-3) \pm \sqrt{1}}{2 \cdot 1} = \frac{3 \pm 1}{2}$$

$$x_1 = \frac{3-1}{2} = \frac{2}{2} = 1 ; x_2 = \frac{3+1}{2} = \frac{4}{2} = 2$$



$a=1>0$  (punem + în tabel  $a>1 \rightarrow +$ )

Soluție inecuației  $x^2 - 3x + 2 \geq 0$  este:

$$x \in [-\infty, 1] \cup [2, +\infty)$$

$$2^{\circ} \quad x^2 - 9 < 0$$

pag 2

$$1 \cdot x^2 + 0 \cdot x + (-9) = 0$$

$$a = 1; b = 0; c = -9.$$

$$\Delta = b^2 - 4ac = 0^2 - 4 \cdot 1 \cdot (-9) = 36$$

$$x_{1,2} = \frac{-b \pm \sqrt{\Delta}}{2 \cdot a} = \frac{-(0) \pm \sqrt{36}}{2 \cdot 1} = \frac{\pm 6}{2}$$

$$\begin{cases} x_1 = \frac{-6}{2} = -3 \\ x_2 = \frac{6}{2} = 3 \end{cases}$$

$x$	$-\infty$	$x_1 = -3$	$x_2 = 3$	$+\infty$
$x^2 - 9$	+	+	+	+

Solutie inecuatiei  $x^2 - 9 < 0$  este:

$$x \in (-3, 3).$$

Teorie

$$\boxed{\Delta \leq 0}$$

$x$	$-\infty$	$+\infty$
$ax^2 + bx + c$	ARE SEMNUL lui a	

Ex 2 Rezolvati inecuatiiile:

$$1^{\circ} \quad 2x^2 + 3x + 11 < 0$$

$$a_1 = 2; b = 3; c = 11; \Delta = b^2 - 4 \cdot 1 \cdot c = (3)^2 - 4 \cdot 2 \cdot 11$$

$$\Delta = 9 - 88 = -79 < 0.$$

$$\Delta < 0; A = 2 > 0.$$

$x$	$-\infty$	$+\infty$
$2x^2 + 3x + 11$	+	++ + + + + + +

Soluție inecuației  $2x^2 + 3x + 11 < 0$  este:  $x \in \emptyset$

OBS'  $2x^2 + 3x + 11 \geq 0 \quad \forall x \in \mathbb{R}$

$\emptyset$  = multimea VIDA

$\forall x \in \mathbb{R} \rightarrow$  oricare  $x \in \mathbb{R}$

$$\textcircled{2^0} \quad -x^2 + 6x + 9 > 0$$

$$a = -1, b = 6, c = 9.$$

$$\Delta = b^2 - 4ac = 6^2 - 4 \cdot (-1) \cdot 9 = 36 - 36 = 0$$

$$x_{1,2} = \frac{-b \pm \sqrt{\Delta}}{2 \cdot a} = \frac{-6 \pm 0}{-2} = \frac{-6}{-2} = 3; \quad x_1 = x_2 = 3.$$

$x$	$-\infty$	$x_1 = x_2 = 3$	$+\infty$
$-x^2 + 6x - 9$	- - - 0 - - - -		

Soluție inecuației  $-x^2 + 6x - 9 \geq 0$  este:  $x \in \emptyset$

OBS'  $-x^2 + 6x - 9 \leq 0 \quad \forall x \in \mathbb{R}$ .

Rezolvăți (LA FEL) inecuațile:

$$1^0) \quad x^2 - 8x + 9 > 0$$

$$2^0) \quad x^2 - 7x + 6 \geq 0$$

$$3^0) \quad x^2 - 10x + 25 \geq 0$$