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$$y = x^3 + 9x^2 + 27x$$

D: IR

INTERS.

Ass
x

$$\begin{cases} y = x^3 + 9x^2 + 27x \\ y = 0 \end{cases}$$

$$x^3 + 9x^2 + 27x = 0$$

$$x(x^2 + 9x + 27) = 0$$

$$x = 0 \longrightarrow (0; 0)$$

$$x^2 + 9x + 27 = 0$$

$$\Delta = 81 - 108 < 0 \quad \text{No INT.}$$

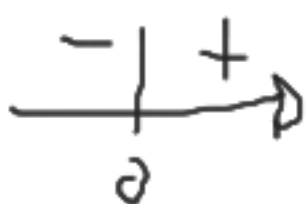
Ass $\begin{cases} y = x^3 + 9x^2 + 27x \\ y \begin{cases} x = 0 \end{cases} \end{cases}$

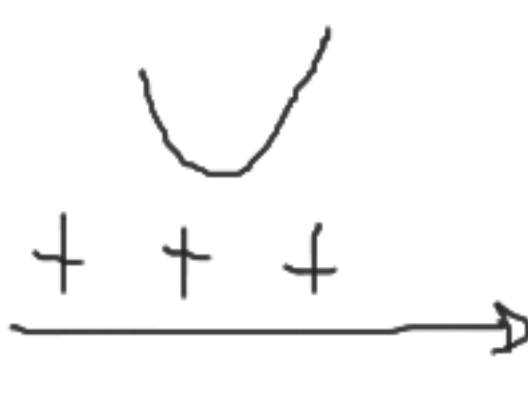
$O(0;0)$

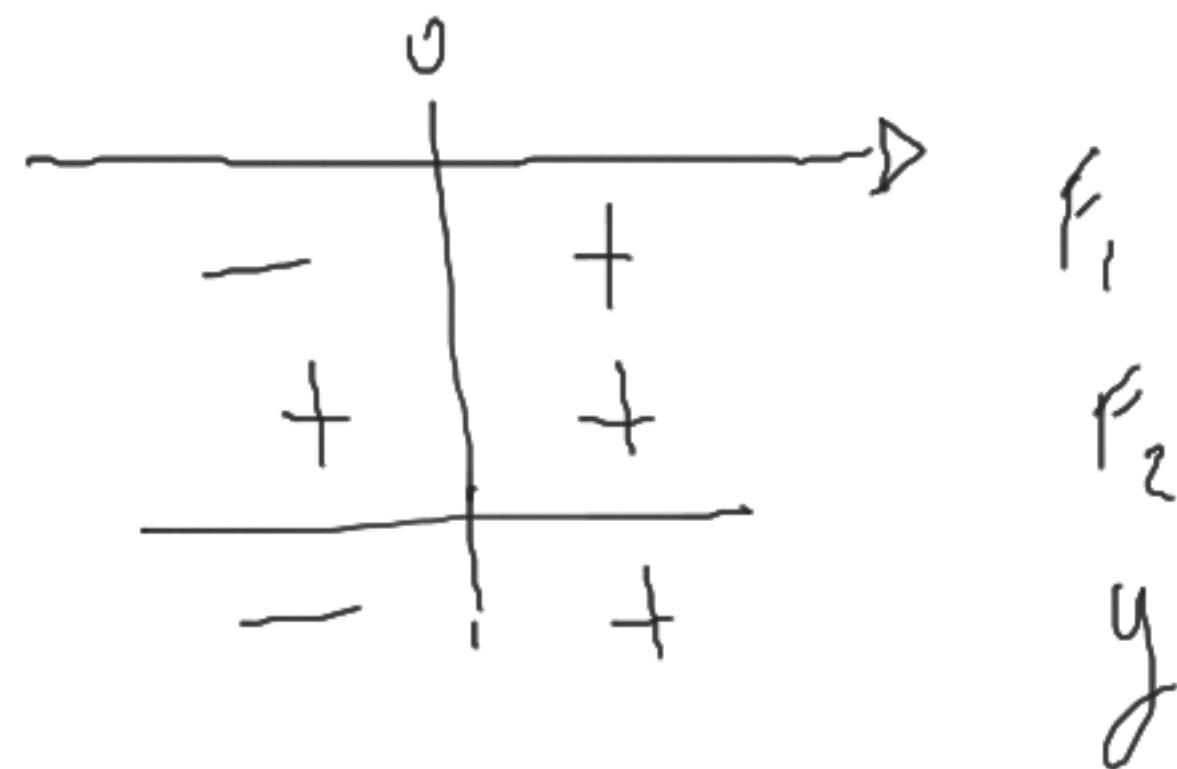
SEGN

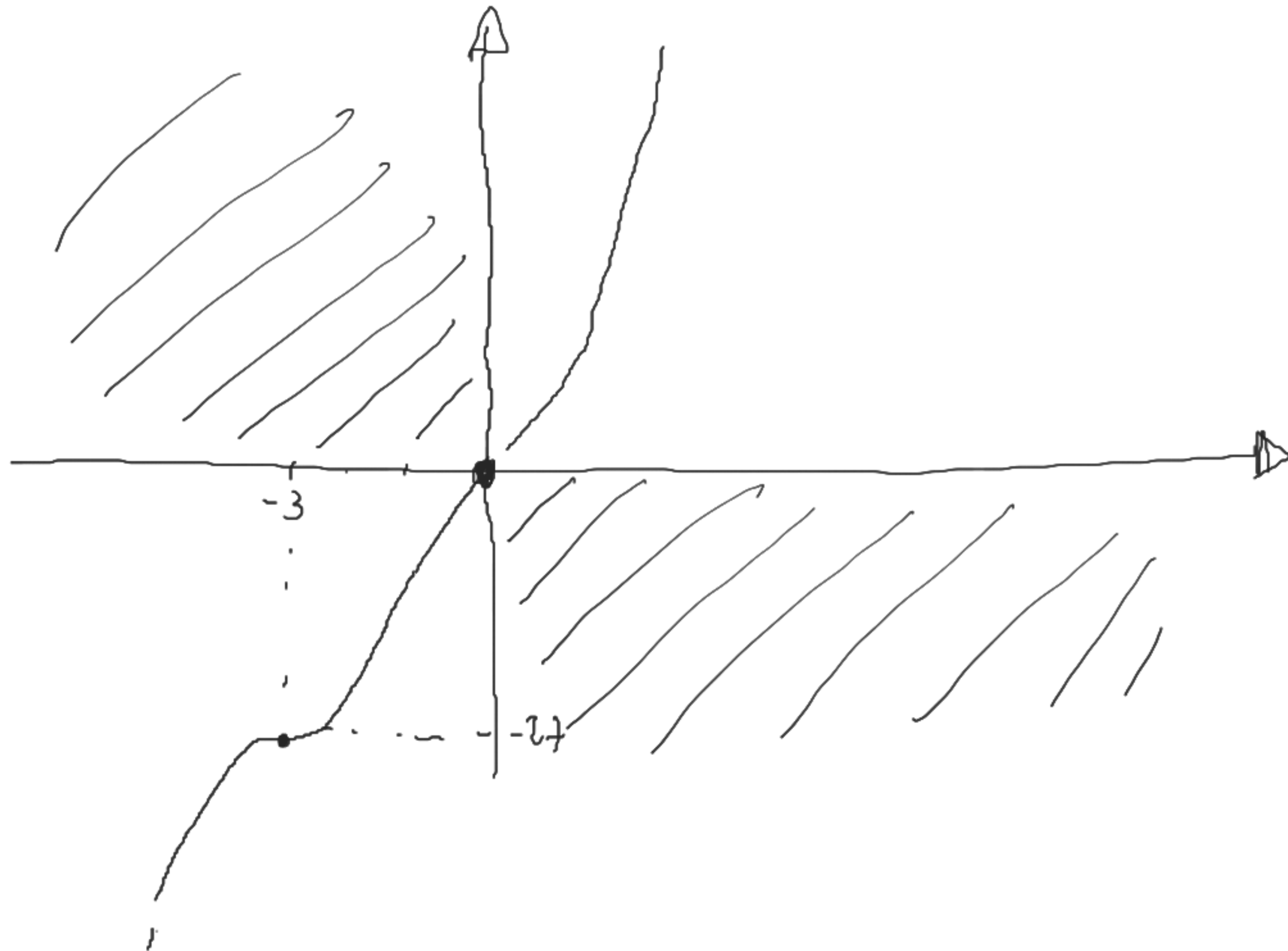
$$x^3 + 9x^2 + 27x > 0$$

$$x(x^2 + 9x + 27) > 0$$

$P_1: x > 0$ 

$P_2: x^2 + 9x + 27 > 0$ 





$$\underline{LIM111} \rightarrow \pm \infty$$

$$\lim_{x \rightarrow +\infty} x^3 + 9x^2 + 27x = +\infty + \infty + \infty = +\infty$$

$$x \rightarrow +\infty$$

No AS. OBL.

$$\lim_{x \rightarrow -\infty} \underbrace{x^3}_{-} + \cancel{9x^2 + 27x} = \underbrace{-\infty}_{\downarrow} + \infty = -\infty$$

F.I.

DERIVATA PRIMA

$$a) y' = 3x^2 + 18x + 27$$

$$b) 3x^2 + 18x + 27 = 0$$

$$\Delta = 324 - 324 = 0$$

$$x = \frac{-18 \pm 0}{6} = -3$$

$$f(-3) = -27 + 81 - 81 = -27$$

A(-3; -27) flex orizz.

c)

