

$$y = \frac{x^2 + 7}{3 - x}$$

$$y = mx + q$$

$$m = \lim_{x \rightarrow \infty} \frac{\frac{x^2}{x^2} + \frac{7}{x^2}}{3 \frac{x}{x^2} - \frac{x^2}{x^2}} = -1 \quad m = -1$$

$$q = \lim_{x \rightarrow \infty} (f(x) - m \cdot x) = \lim_{x \rightarrow \infty} \left( \frac{x^2 + 7}{3 - x} + 1 \cdot x \right) =$$

$$= \lim_{x \rightarrow \infty} \frac{x^2 + 7 + x(3 - x)}{3 - x} = \lim_{x \rightarrow \infty} \frac{x^2 + 7 + 3x - x^2}{3 - x} =$$

$$= \lim_{x \rightarrow \infty} \frac{3x + 7}{3 - x} = \lim_{x \rightarrow \infty} \frac{3 + \frac{7}{x}}{\frac{3}{x} - 1} = \frac{3}{-1} = -3$$

ASINTOTO OBLIQUO!

$$y = -x - 3$$

$$y = \frac{x^2 + 7}{3 - x}$$

$$D = \{ \forall x \in \mathbb{R}, x \neq 3 \}$$

$$D = ]-\infty; +3[ \cup ]3; +\infty[$$

$$x^2 = -7$$

$$x = 3$$

$$x^2 = \pm \sqrt{-7} \notin \mathbb{R}$$

$$\begin{array}{c} 3 \\ | \\ x^2 + 7 \quad + \quad | \quad + \\ | \\ 3 - x \quad + \quad | \quad - \\ \hline y \quad + \quad | \quad - \end{array}$$

INT. ASSE Y

$$\begin{cases} y = \frac{x^2 + 7}{3 - x} \\ x = 0 \end{cases} \quad \begin{cases} y = \frac{7}{3} \\ x = 0 \end{cases}$$

$(0; \frac{7}{3})$

NON CI SONO INTERSEZIONI CON L'ASSE X.

ASINTOTO VERT

$$x = 3$$

ASINTOTO OBL.

$$y = -x - 3$$

$$y' = \frac{2x(3-x) - (-1)(x^2+7)}{(3-x)^2}$$

$$y' = \frac{6x - 2x^2 + x^2 + 7}{(3-x)^2}$$

$$y' = \frac{-x^2 + 6x + 7}{(3-x)^2}$$

$$-x^2 + 7x - x + 7$$

$$x(-x+7) + (-x+7)$$

$$(x+1)(-x+7)$$

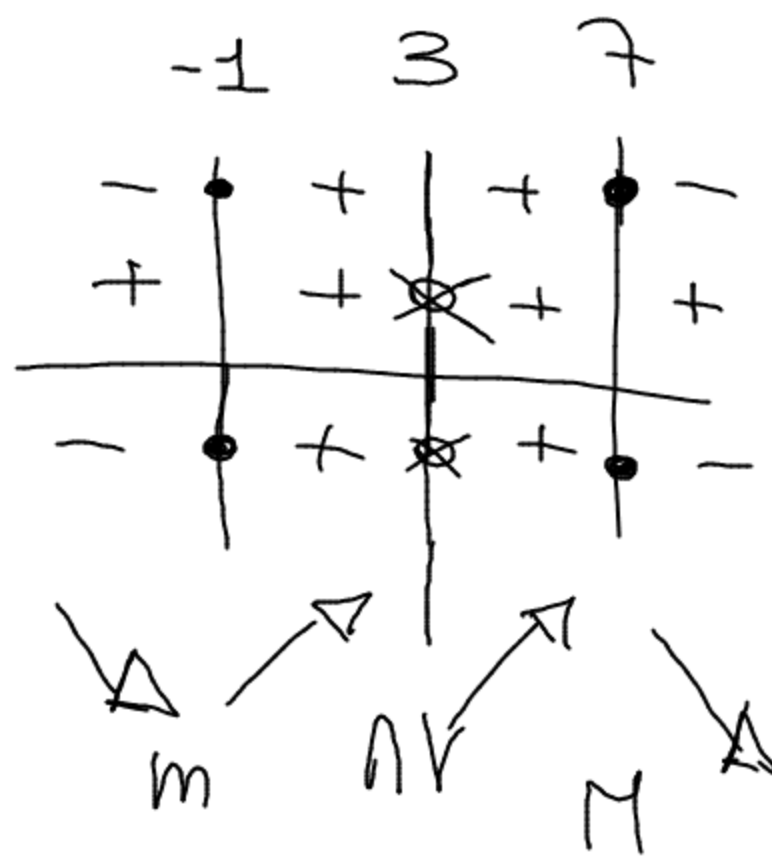
$$x = -1$$

$$x = 7$$

$$\frac{-x^2 + 6x + 7}{(3-x)^2}$$

$$y$$

$$y'$$



$$y_m = f(-1) = 2$$

$$y_M = f(7) = -14$$

$$m(-1; 2)$$

$$M(7; -14)$$

