$y = 4 - x^2$

$D = \{\forall x \in \mathbb{R}\}$

$D =]-\infty ; \infty[$

$$\begin{array}{ccccc} & -2 & & 2 & \\ - & \phi & + & \phi & - \end{array}$$

ASSE X

$$\begin{cases} y = 0 \\ 0 = 4 - x^2 \end{cases} \begin{cases} x = -2 \vee x = 2 \end{cases}$$

$(-2;0)$ $(2;0)$

ASSE Y

$(0;4)$

NON CI SONO ASINTOTI

DERIVATA

$$\lim_{h \to 0} \frac{f(x+h) - f(x)}{h} = \lim_{h \to 0} \frac{4 - (x+h)^2 - (4 - x^2)}{h} =$$

$$= \lim_{h \to 0} \frac{4 - (x^2 + 2xh + h^2) - (4 - x^2)}{h} =$$

$$= \lim_{h \to 0} \frac{\cancel{4} - \cancel{x^2} - 2xh - h^2 - \cancel{4} + \cancel{x^2}}{h} = \lim_{h \to 0} \frac{\cancel{h}(-2x - h)}{\cancel{h}} =$$

$$= \lim_{h \to 0} (-2x - h) = -2x$$

QUINDI $y' = -2x$

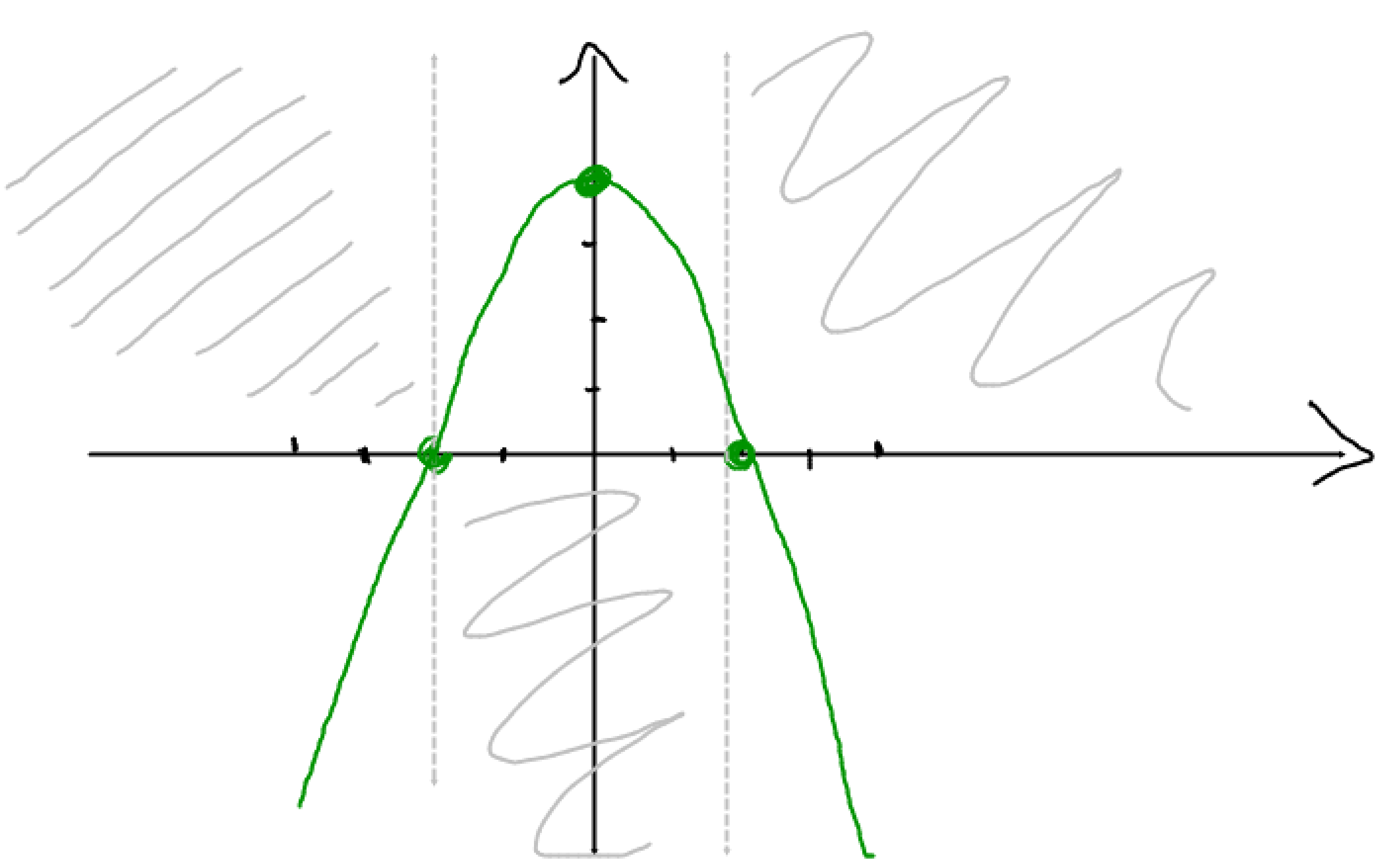
STUDIAMO IL SEGNO DELLA DERIVATA

$$\begin{array}{c|ccc} & & 0 & \\ -2x & + & \phi & - \\ \hline y & \nearrow & & \searrow \end{array}$$

MAX

MAX$(0;4)$

$y_{MAX} = f(0) = 4$



$y = 3x^2 - 4x + 5$ derivare con la definizione

$y = kx^n$

$y' = nkx^{n-1}$

$y' = 6x - 4$

$y = x^4 - 5x^3 - 2x + 4$

$y' = 4x^3 - 15x^2 - 2$

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