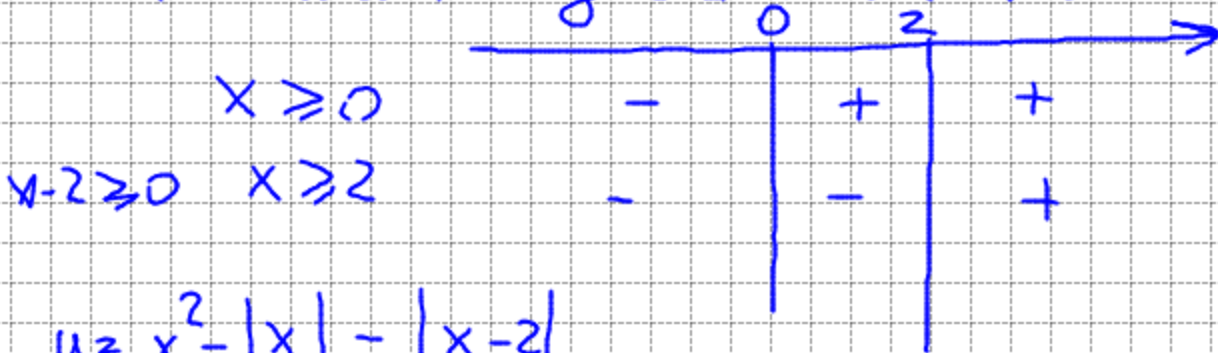


$$y = x^2 - |x| - |x-2|$$

Studiamo il segno dei due moduli:

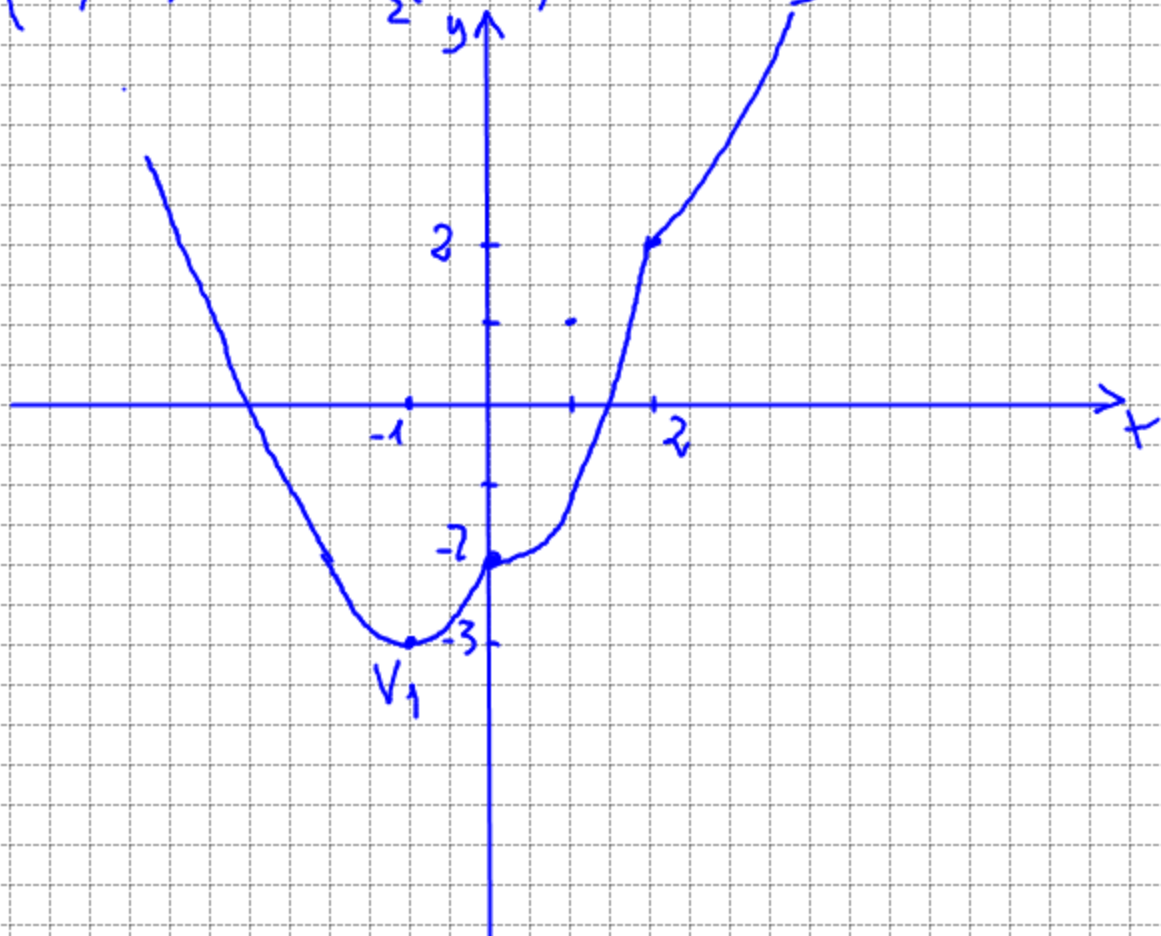


$$y = x^2 - |x| - |x-2|$$



$$\left\{ \begin{array}{l} x < 0 \\ y = x^2 - (-x) - (-x+2) \end{array} \right. \cup \left\{ \begin{array}{l} 0 \leq x < 2 \\ y = x^2 - (x) - (-x+2) \end{array} \right. \cup \left\{ \begin{array}{l} x \geq 2 \\ y = x^2 - x - (x-2) \end{array} \right.$$

$$\left\{ \begin{array}{l} x < 0 \\ y = x^2 + 2x - 2 \\ V_1(-1; -3) \end{array} \right. \cup \left\{ \begin{array}{l} 0 \leq x < 2 \\ y = x^2 - 2 \\ V_2(0; -2) \end{array} \right. \cup \left\{ \begin{array}{l} x \geq 2 \\ y = x^2 - 2x + 2 \\ V_3(1; 1) \end{array} \right.$$



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$$\Gamma_1: V(0,0) \quad F(0, \frac{1}{16}) \quad y = ax^2 + bx + c$$

$$\Gamma_2: V(0,0) \quad d: x = \frac{1}{8} \quad v = a_1y^2 + b_1y + c_1$$

$$\Gamma_1: \begin{cases} -\frac{b}{2a} = 0 \\ c = 0 \\ \frac{1-\Delta}{4a} = \frac{1}{16} \end{cases} \Rightarrow \begin{cases} b = 0 \\ c = 0 \\ 1 - b^2 + 4ac = \frac{1}{4} \Rightarrow \end{cases} \begin{cases} b = 0 \\ c = 0 \\ a = 4 \end{cases}$$

$$\Gamma_1: y = 4x^2$$

$$\Gamma_2: \begin{cases} c = 0 \\ b = 0 \\ \frac{-1-\Delta}{4a} = -\frac{1}{8} \end{cases} \Rightarrow \begin{cases} c = 0 \\ b = 0 \\ 1 + \Delta = \frac{1}{2}a \end{cases} \Rightarrow \begin{cases} c = 0 \\ b = 0 \\ a = 2 \end{cases}$$

$$\Gamma_2: x = 2y^2$$

$$\begin{cases} y = 4x^2 \\ x = 2y^2 \end{cases} \Rightarrow \begin{cases} y = 4(2y^2)^2 \\ x = 2y^2 \end{cases} \Rightarrow \begin{cases} y = 16y^4 \\ x = 2y^2 \end{cases} \Rightarrow \begin{cases} 16y^4 - y = 0 \\ x = 2y^2 \end{cases}$$

$$\begin{cases} y(16y^3 - 1) = 0 \\ x = 2y^2 \end{cases} \Rightarrow \begin{cases} y = 0 \\ x = 0 \end{cases} \Rightarrow 0(0,0)$$

$$\begin{cases} 16y^3 - 1 = 0 \\ x = 2y^2 \end{cases}$$

$$\left(\sqrt[3]{16y} - 1\right) \left(\left(\sqrt[3]{16y}\right)^2 + 1 - \sqrt[3]{16y}\right) = 0$$

$$\begin{cases} y = \frac{1}{\sqrt[3]{16}} \\ x = 2 \frac{1}{\left(\sqrt[3]{16}\right)^2} = \frac{2}{\left(2\sqrt[3]{2}\right)^2} = \frac{2}{4\sqrt[3]{4}} = \frac{1}{2\sqrt[3]{4}} \\ = \frac{\sqrt[3]{16}}{8} = \frac{2\sqrt[3]{2}}{8} = \frac{\sqrt[3]{2}}{4} \end{cases}$$

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$\Gamma_1: y = ax^2 + bx + c \quad x = 3$ Asse simmetria

$a, b, c \in \mathbb{R} \quad A(-1; -4)$ e Tg $a \quad 4x - 4y + 37 = 0$.

asse di simmetria $x = -\frac{b}{2a}$

$$\begin{cases} -\frac{b}{2a} = 3 \\ -4 = a - b + c \\ (b-1)^2 - 4a\left(c - \frac{37}{4}\right) = 0 \end{cases}$$

$$\begin{cases} y = ax^2 + bx + c \\ y = x + \frac{37}{4} \\ ax^2 + bx + c = x + \frac{37}{4} \\ ax^2 + x(b-1) + c - \frac{37}{4} = 0 \\ \Delta = 0 \end{cases}$$

$$\begin{cases} b = -6a \\ a + 6a + c = -4 \\ (-6a-1)^2 - 4a\left(c - \frac{37}{4}\right) = 0 \end{cases} \begin{cases} b = -6a \\ c = -4 - 7a \\ 36a^2 + 1 + 12a - 4a\left(-4 - 7a - \frac{37}{4}\right) = 0 \end{cases}$$

$$\begin{cases} b = -6a \\ c = -4 - 7a \\ 36a^2 + 1 + 12a + 53a + 28a^2 = 0 \end{cases}$$

$$\begin{cases} 64a^2 + 65a + 1 = 0 \\ c = -4 - 7a \\ b = -6a \end{cases} \quad a_{1,2} = \frac{-65 \pm \sqrt{4225 - 256}}{128} = \frac{-65 \pm 63}{128}$$

$$\begin{cases} a = -1 \\ b = 6 \\ c = 3 \end{cases}$$

$$\begin{cases} a = -\frac{1}{64} \\ b = +\frac{3}{32} \\ c = -\frac{249}{64} \end{cases}$$