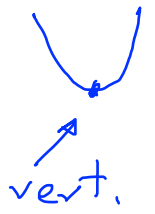


1b $y = (x+1)^2 - 5$

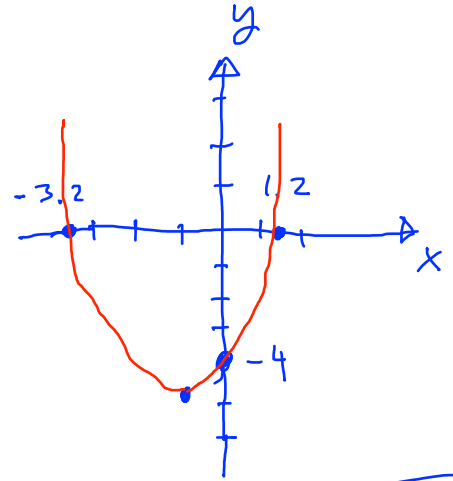
$y = a \cdot x^2 + bx + c$



• int con eje de $\begin{matrix} x \\ y \end{matrix}$ $(0, -4)$

• vértice? $(-1, -5)$

• Dibujar



Sustituimos $x=0$

$\Rightarrow y = (0+1)^2 - 5 = 1^2 - 5 = -4$

eje de x
 $0 = (x+1)^2 - 5 \quad / +5$
 $(x+1)^2 = 5$

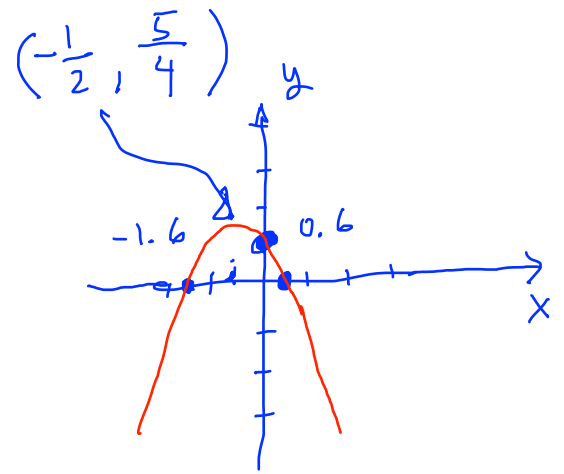
$x+1 = \pm \sqrt{5}$

$x = -1 \pm \sqrt{5} = \begin{cases} -1 - \sqrt{5} \approx -1 - 2.2 = -3.2 \\ -1 + \sqrt{5} \approx -1 + 2.2 = 1.2 \end{cases}$

si $y = (x-x_0)^2 + y_0$
 $\Rightarrow (x_0, y_0)$ es el vértice

Id: $y = -x^2 - x + 1$

• int. con $\begin{matrix} x \\ y \end{matrix} \begin{pmatrix} \\ (0, 1) \end{pmatrix} \checkmark$



• vértice

• dibujar

$$x_{1,2} = \frac{-b \pm \sqrt{}}{2a}$$

$$x_{\text{vert}} = -b/2a$$

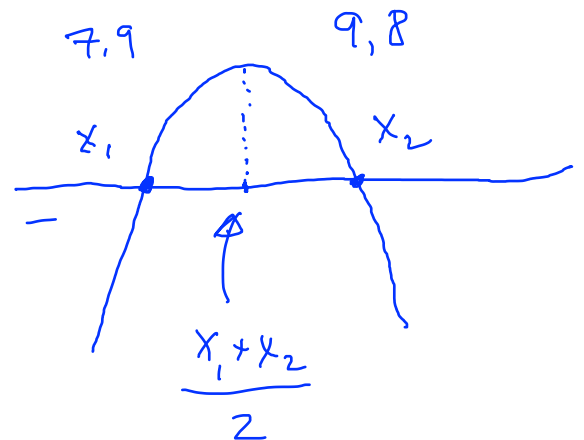
$-x^2 - x + 1 = 0 \quad / \cdot (-1)$

$x^2 + x - 1 = 0$

$$x = \frac{-1 \pm \sqrt{1+4}}{2} = \frac{-1 \pm \sqrt{5}}{2} = \begin{cases} \frac{-1-\sqrt{5}}{2} = \frac{-1-2,2}{2} = \frac{-3,2}{2} = -1,6 \\ \frac{-1+\sqrt{5}}{2} = \frac{-1+2,2}{2} = \frac{1,2}{2} = 0,6 \end{cases}$$

$x_1 = \frac{-1-\sqrt{5}}{2}, \quad x_2 = \frac{-1+\sqrt{5}}{2}$

$$\frac{x_1 + x_2}{2} = \frac{\frac{-1-\sqrt{5}}{2} + \frac{-1+\sqrt{5}}{2}}{2} = \frac{-1-\sqrt{5} + (-1) + \sqrt{5}}{2} = \frac{-2}{2} = -1$$



$\phi = \frac{-1}{2} = -\frac{1}{2}$

$$x_{\text{vert}} = \boxed{-1/2}$$

$$y_{\text{vert}} = -\left(x_{\text{vert}}\right)^2 - x_{\text{vert}} + 1 =$$

$$= -\left(-\frac{1}{2}\right)^2 - \left(-\frac{1}{2}\right) + 1 =$$

$$= -\frac{1}{4} + \frac{1}{2} + 1 = \frac{-1 + 2 + 4}{4} = \boxed{\frac{5}{4}}$$

$$y = -x^2 - x + 1 =$$

$$= -(x^2 + x) + 1 =$$

$$= -\left(x + \frac{1}{2}\right)^2 + \frac{1}{4} + 1$$

$$= -\left(x + \frac{1}{2}\right)^2 + \frac{5}{4}$$

$$\underline{x_{\text{vert}} = -1/2} \quad \underline{y_{\text{vert}} = 5/4}$$

Completar
cuadrado

PF

$$y = a(x - x_0)^2 + y_0$$