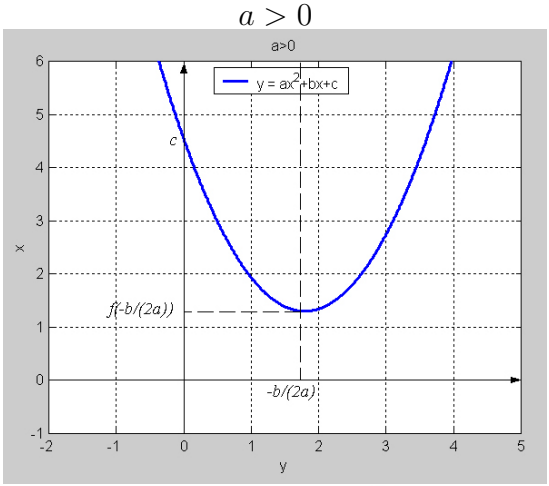
Funciones cuadráticas (polinómicas de grado 2)

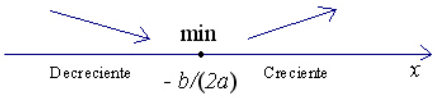
Son las funciones de la forma:

$$f : \mathbb{R} \to \mathbb{R} : f(x) = ax^2 + bx + c \text{ con } a \neq 0$$

Su representación gráfica es una *parábola* que la bosquejamos con su valor extremo $f\left(-\frac{b}{2a}\right)$ y la ordenada en el origen $f(0) = c$:

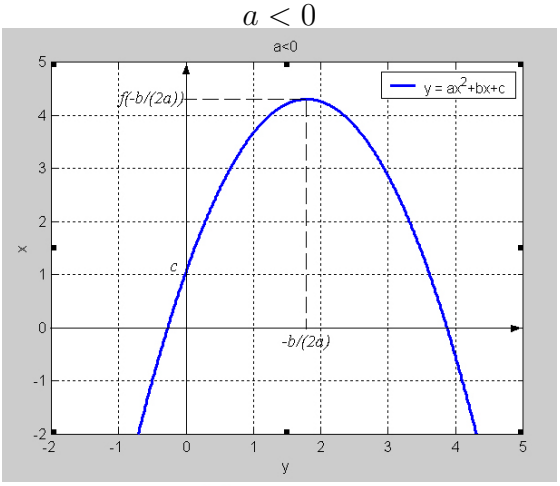
$a > 0$

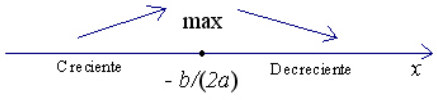




$$f(\mathbb{R}) = \left[f\left(-\frac{b}{2a}\right); +\infty\right)$$

$a < 0$

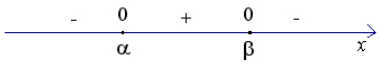




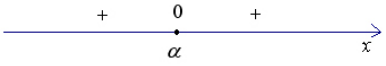
$$f(\mathbb{R}) = \left(-\infty; f\left(-\frac{b}{2a}\right)\right]$$

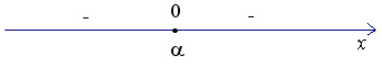
$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$b^2 - 4ac > 0$$



$$b^2 - 4ac = 0$$





$$b^2 - 4ac < 0$$