

FORMULÁRIO FUNÇÃO QUADRÁTICA

Chama-se **função quadrática**, ou **função polinomial do 2º grau**, qualquer função f de $\mathbb{R}$ em $\mathbb{R}$, dada por uma lei de formação: $f(x) = ax^2 + bx + c$, em que a , b e c são números reais e a diferente de zero.

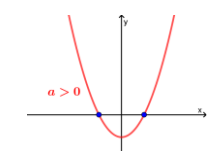
Fórmula de Bhaskara

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

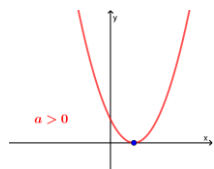
Discriminante

$$\Delta = b^2 - 4ac$$

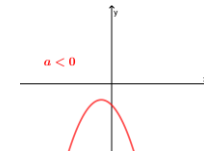
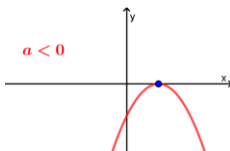
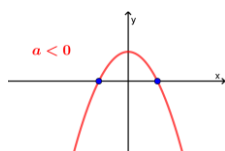
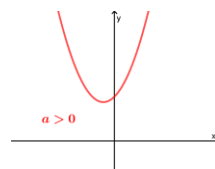
$\Delta > 0$ Duas raízes



$\Delta = 0$ Uma raiz



$\Delta < 0$ Não existe raiz Real



Soma e Produto das Raízes

$$\text{Soma} = -\frac{b}{a}$$

$$\text{Produto} = \frac{c}{a}$$

Forma Fatorada

$$y = a \cdot (x - \text{raiz 1}) \cdot (x - \text{raiz 2})$$

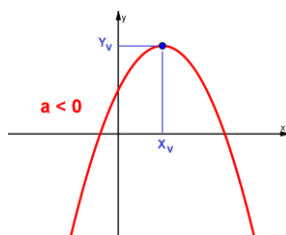
Vértice

Coordenadas

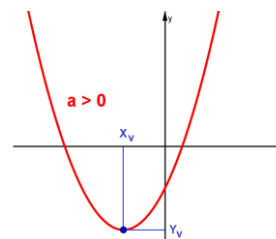
$$V = (x_v, y_v)$$

$$V = \left(-\frac{b}{2a}, -\frac{\Delta}{4a} \right)$$

Valor Máximo



Valor Mínimo



Conjunto Imagem

$$\text{Se } a < 0 \quad \text{Im} = \left\{ y \in \mathbb{R} \mid y \leq -\frac{\Delta}{4a} \right\}$$

$$\text{Se } a > 0 \quad \text{Im} = \left\{ y \in \mathbb{R} \mid y \geq -\frac{\Delta}{4a} \right\}$$

