

FORMULÁRIO FUNÇÃO QUADRÁTICA

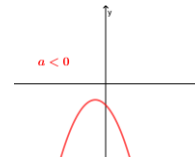
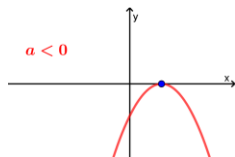
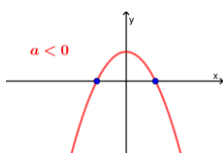
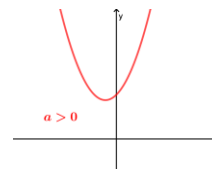
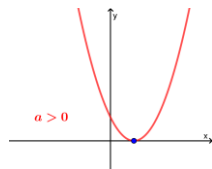
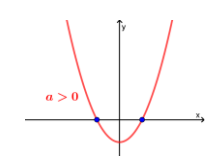
Chama-se **função quadrática**, ou **função polinomial do 2º grau**, qualquer função  $f$  de  $\mathbb{R}$  em  $\mathbb{R}$ , dada por uma lei de formação:  $f(x) = ax^2 + bx + c$ , em que  $a$ ,  $b$  e  $c$  são números reais e  $a$  diferente de zero.

|                            |                      |
|----------------------------|----------------------|
| <b>Fórmula de Bhaskara</b> | <b>Discriminante</b> |
|----------------------------|----------------------|

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

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

|                                 |                              |  |
|---------------------------------|------------------------------|--|
| $\Delta > 0$ <i>Duas raízes</i> | $\Delta = 0$ <i>Uma raiz</i> | $\Delta < 0$ <i>Não existe raiz Real</i> |
|---------------------------------|------------------------------|--|



|                                  |                       |
|----------------------------------|-----------------------|
| <b>Soma e Produto das Raízes</b> | <b>Forma Fatorada</b> |
|----------------------------------|-----------------------|

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

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

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

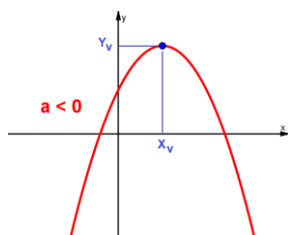
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| <b>Vértice</b> |  |  |
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**Coordenadas**

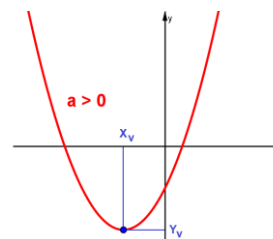
$$V = (x_v, y_v)$$

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

**Valor Máximo**



**Valor Mínimo**



|                        |  |
|------------------------|--|
| <b>Conjunto Imagem</b> |  |
|------------------------|--|

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

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

