$y = x^2 - 2x - 3$ (a, b, c)

$\Delta = -2^2 - 4 \cdot 1 \cdot (-3)$

$\Delta = 4 - (-12)$

$\Delta = 16$

$\Delta > 0$ = 2 RAÍZES

$x = \frac{-(-2) + \sqrt{16}}{2 \cdot 1} = \frac{2+4}{2} = \frac{6}{2} = 3$

$y = \frac{-(-2) - \sqrt{16}}{2 \cdot 1} = \frac{2-4}{2} = \frac{-2}{2} = -1$

máximo ou mínimo $= x = \frac{-b}{2a} = \frac{-(-2)}{2 \cdot 1} = \frac{2}{2} = 1$

$y = -\frac{\Delta}{4 \cdot a} = \frac{-16}{4 \cdot 4} = \frac{-16}{4} = -4$

$y = -x^2 + 2x - 4$ (a, b, c)

" — "

$\Delta = 2^2 - 4 \cdot (-1) \cdot (-4)$

$\Delta = 4 - (16)$

$\Delta = -12$

Sem Raízes

$\Delta < 0$

$x = \frac{-b}{2a} = \frac{-2}{2 \cdot (-1)} = \frac{-2}{-2} = 1$

$y = \frac{-\Delta}{4 \cdot a} = \frac{-(-12)}{4 \cdot (-1)} = \frac{12}{-4} = -3$

$y = 4 - x^2 + 1x$ (c, a, b)

" — "

$\Delta = 1^2 - 4 \cdot (-1) \cdot 4$

$\Delta = 1 - (-16)$

$\Delta = \sqrt{17}$

$\frac{-1 + \sqrt{17}}{2 \cdot (-1)} = \frac{-1\sqrt{17}}{-2} =$ "

$x = \frac{-b}{2a} = \frac{-1}{2 \cdot (-1)} = \frac{-1}{-2} = 0$

$y = \frac{-\Delta}{4 \cdot a} = \frac{-17}{4 \cdot (-1)} = \frac{-17}{-4} = 4$

$y = 4x^2 + 20x + 25$ (a, b, c)

" — "

$\Delta = b^2 - 4 \cdot (4) \cdot 25$

$\Delta = 400 - 400$

$\Delta = 0$

ÚNICA Raíz

$\Delta = 0$

$\frac{-20 + 0}{2 \cdot 4} = \frac{-20}{8} = -2.5$

$x = \frac{-b}{2 \cdot a} = \frac{-20}{2 \cdot 4} = -2,5$

$y = \frac{-\Delta}{4 \cdot a} = \frac{-0}{4 \cdot 4} = \frac{0}{8} = 0$

a b c

$\Delta = (-5)^2 - 4.1.0$

$\Delta = 25 - 0 = 25$

$\frac{-(-5) + \sqrt{25}}{2.1} = \frac{5+5}{2} = \frac{10}{2} = 5$

$\frac{-(-5) - \sqrt{25}}{2.1} = \frac{5-5}{2} = \frac{0}{2} = 0$

$x = \frac{-b}{2a} = \frac{-(-5)}{2.1} = \frac{5}{2} = 2,5$

$y = \frac{-\Delta}{4.a} = \frac{-25}{4.1} = \frac{-25}{4} = -6,25$

$y = -x^2 + 0x + 0$

a b c

$\Delta = 0^2 - 4.(-1).0$

$\Delta = 0 - 0$

$\Delta = 0$

$\frac{-0 + 0}{2.(-1)} = \frac{0}{2} = 0$