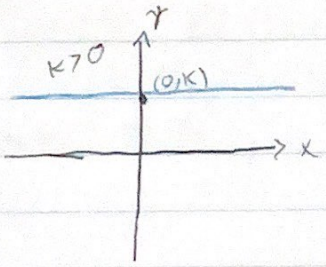
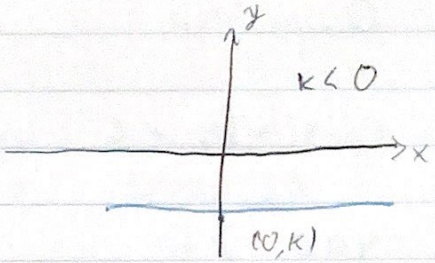
NOME: FELIPE ANCHANO DA CUNHA MENDES
RA: 2252740

FUNÇÕES ELEMENTARES

FUNÇÃO CONSTANTE

$f(x) = K$ onde $K \in \mathbb{R}$

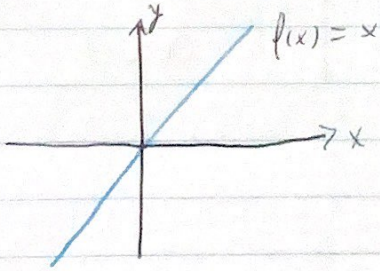




FUNÇÃO LINEAR

$y = ax$, ONDE $a \in \mathbb{R}^*$

$(0,0)$ É UM INTERCEPTO



FUNÇÃO LINEAR AFIM

$y = ax + b$ $\quad a, b \in \mathbb{R}^*$

O GRÁFICO É UMA RETA COM

x - INTERCEPTO $\left(-\frac{b}{a}, 0\right)$

y - INTERCEPTO $(0, b)$

$f(x) = 2x + 2$

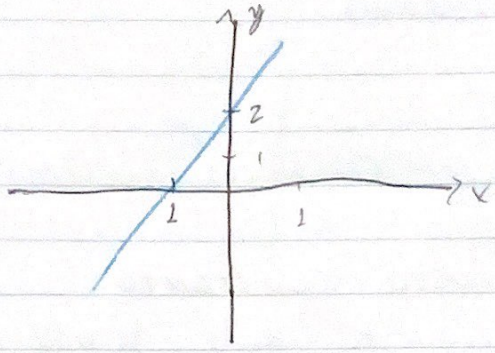
a b

x INTERCEPTO

$\left(\frac{-2}{2}, 0\right) = (-1, 0)$

y - INTERCEPTO

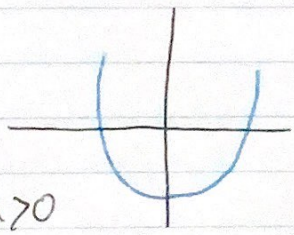
$(0, 2)$



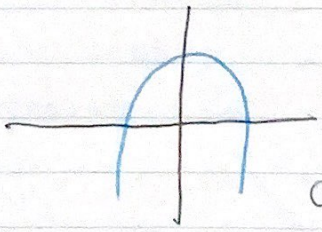
FUNÇÃO QUADRÁTICA

$f(x) = ax^2 + bx + c$, ONDE $a, b, c \in \mathbb{R}$ COM $a \neq 0$

* $b^2 - 4ac \geq 0$

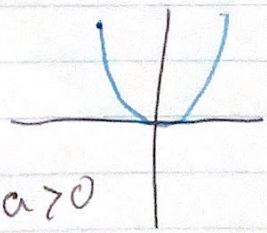


$a > 0$

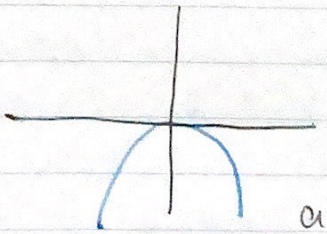


$a < 0$

* $b^2 - 4ac = 0$

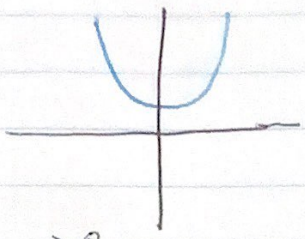


$a > 0$

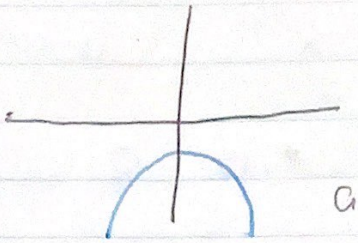


$a < 0$

* $b^2 - 4ac < 0$



$a > 0$



$a < 0$

FUNÇÃO POLINOMIAL

$$f(x) = a_0 x^n + a_1 x^{n-1} + \dots + a_{n-1} x + a_n$$

$a_i \in \mathbb{R}$ $i = 0, \dots, n$ COM $a_0 \neq 0$

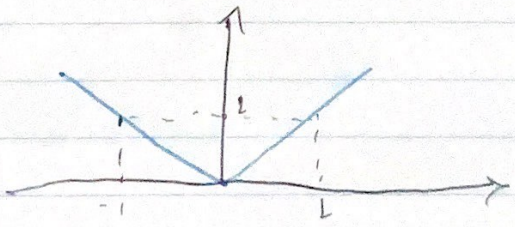
FUNÇÃO RACIONAL

$$f(x) = \frac{p(x)}{q(x)}$$

$p(x)$ e $q(x)$ SÃO POLINOMIOS e $q(x) \neq 0$

FUNÇÃO MODULO

$$f(x) = |x| = \begin{cases} x, & \text{se } x \geq 0 \\ -x, & \text{se } x < 0 \end{cases}$$



FUNÇÃO POTÊNCIA

$f(x) = x^a \qquad a \in \mathbb{R}$

* $a = 0$

$f(x) = x^0 = 1$

* $a = 1$

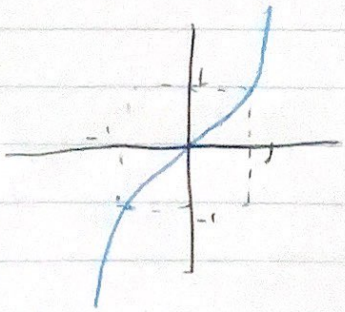
$f(x) = x$

* $a = 2$

$f(x) = x^2$

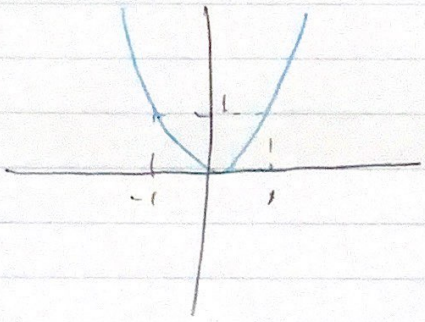
* $a = \text{IMPAR} \neq 1$

$f(0) = 0^a = 0$
$f(1) = 1^a = 1$
$f(-1) = (-1)^a = -1$



* $a = \text{Pari} > 2$

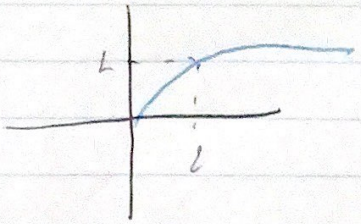
$f(0) = 0^a = 0$
$f(1) = 1^a = 1$
$f(-1) = (-1)^a = 1$



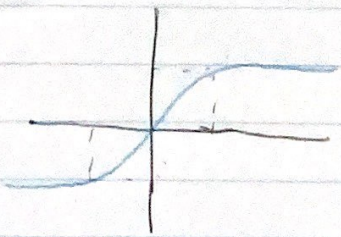
* $a = 1/n \quad n \in \mathbb{N}$

$f(x) = x^{1/n} = \sqrt[n]{x}$ (FUNC. INIETT.)

↳ n pari: $D(\sqrt[n]{x}) = [0, +\infty[$



↳ n dispari: $D(\sqrt[n]{x}) = \mathbb{R}$



- $a = -n \qquad n \in \mathbb{N}^*$

$f(x) = x^{-n} = \frac{1}{x^n}$

$D\left(\frac{1}{x^n}\right) = \mathbb{R} - \{0\}$