T63 - CÁLCULO

JOSÉ VICTOR SANTOS ALVES Nº 14713085

LARYSSA VITÓRIA Nº 14687647

RAFAELA CRISTINA Nº 14616361

COMEÇAMOS PELA ORDEM INVERSA DAS PÁGINAS

PÁG 65

18) A) Pois só existe um X para ~~o mesmo~~ um y

b) $D_f = \{x \in \mathbb{R}\}$ e $Im = \{-1 \leq y \leq 3\}$

c) $f^{-1}(2) = 0$

d) $f^{-1}(0) = -1,5$

20) $m = \dfrac{m_0}{\sqrt{1 - \frac{v^2}{c}}} \Rightarrow \sqrt{1 - \dfrac{v^2}{c^2}} = \dfrac{m_0}{v} \rightarrow 1 - \dfrac{v^2}{c^2} = \left(\dfrac{m_0}{v}\right)^2$

$\rightarrow \dfrac{-v^2}{c^2} = -1 + \left(\dfrac{m_0}{v}\right)^2 \rightarrow \dfrac{v^2}{c^2} = 1 - \left(\dfrac{m_0}{v}\right)^2$

$\rightarrow v^2 = c^2\left(1 - \left(\dfrac{m_0}{v}\right)^2\right) \rightarrow v = \sqrt{c^2\left(1 - \left(\dfrac{m_0}{v}\right)^2\right)}$

$\rightarrow v = c\sqrt{1 - \left(\dfrac{m_0}{v}\right)^2}$

24) $y = x^2 - x$

CANÔNICA → $x^2 - x = x^2 - x + \left(\frac{1}{2}\right)^2 - \left(\frac{1}{2}\right)^2$

$$x^2 - x = \left(x - \frac{1}{2}\right)^2 - \frac{1}{4}$$

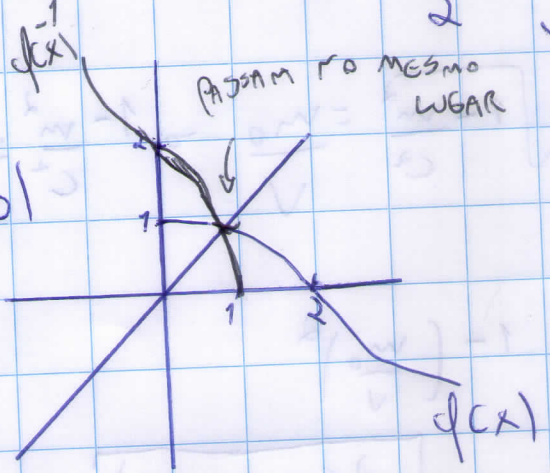
$$y = \left(x - \frac{1}{2}\right)^2 - \frac{1}{4}$$

INVERSA: $\left(\left(y - \frac{1}{2}\right)^2 - \frac{1}{4}\right) = x$

$$\left(y - \frac{1}{2}\right)^2 = x + \frac{1}{4}$$

$$y = \frac{1}{2} + \sqrt{x + \frac{1}{4}}, \quad x \geq -\frac{1}{4}$$

30)



3C)

A) $\ln\left(\frac{1}{e}\right) = \ln - \ln e = 0 - 1 = -1$

B) $\log\sqrt{10} = \log 10^{\frac{1}{2}} = \frac{1}{2}\log 10 = \frac{1}{2} \cdot 1 = \frac{1}{2}$

4D) ~~Ln~~ $\ln(A+B) + \ln(A-B) - 2\ln C$

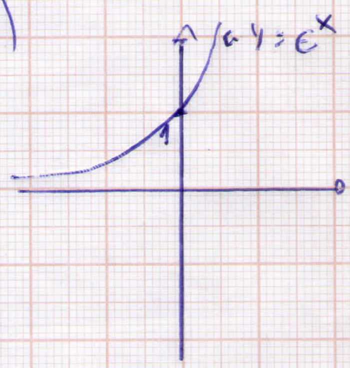
$\ln((A+B)\cdot(A-B)) - \ln C^2$

$\ln(A^2 - B^2) - \ln C^2$

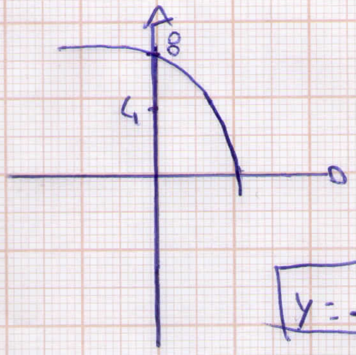
$\ln\left(\frac{A^2 - b^2}{C^2}\right)$

CALCULO
TG3

18)

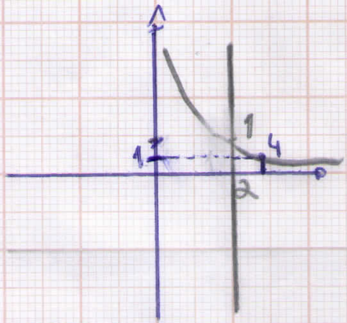


A)



$y = -e^x + 8$

B)



$y = e^{x-4}$

20) (A) $g(t) = \text{sen}(e^{-t})$

$d_F \; x \in \mathbb{R}$

sen(x)

(B) $G(t) = \sqrt{1 - 2^t}$

$1 - 2^t \geq 0$

$(-1) \; -2^t \geq -1 \; (-1)$

$2^t \leq 1$ inverte

$D_F: (-\infty, 0]$

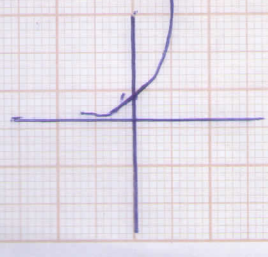


Grafico fica assim

~~10~~

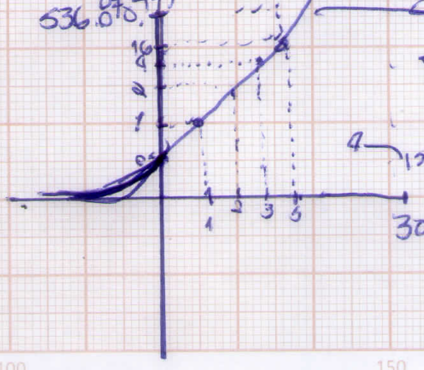
24) 1 mes - 30 dias

$f(x) = 2^{x-1}$ ← troquei por x

t	y	x
	0,5	[illegible]
	1	1
	2	2
	4	3
	8	4
	16	5
	⋮	⋮
	536.870.912	30

24 opção II

5 milhões de dolares no 30 dia



Fora de ESCALA

isso fica pequeno

30 e sobe mt rapido

TURMA 2 T63 CALCULO

(30) 500 — 0

~~500²+500~~

$f(t) = 2^t$ ~~× 500~~

$f(t) = 2^t \cdot 500$

$f(6) = 2^6 \cdot 500$

	0		500
500	30	1	1000
100	60	2	2000
200	90	3	4000
400		4	8000
800		5	16000
1600		6	32000

A) $f(t) = 2^t \cdot 500$

$f(6) = 2^6 \cdot 500$

$f(6) = 32000$

B) $f(t) = 2^{(t \cdot 2)} \cdot 500$

C) 40 minutos = $\frac{4}{3}$ hora

$f(\frac{4}{3}) = 2^{4/3} \cdot 500$

$\Rightarrow \sqrt[3]{2^4} \cdot 500$

$\Rightarrow \sqrt[3]{16} \cdot 500$

$\cong 2{,}519 \cdot 500$

$f(\frac{4}{3}) \cong 1259{,}5$

D) ~~f(6400)~~

$\Rightarrow 100000 = 2^{2t} \cdot 500$

$\Rightarrow \frac{100000}{500} = 2^{2t}$

$200 = 2^{2t}$

Aplicamos $\log_2$ nos dois lados

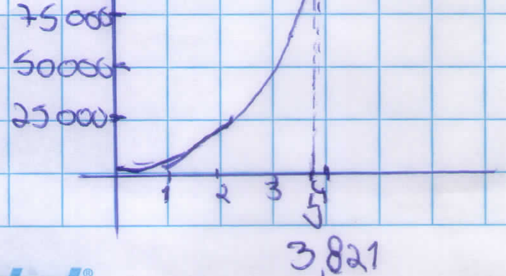
$\log_2 200 = \log_2 (2^{2t})$

$2t = \log_2 200$ valor aproximado

$2t \cong 7{,}643$

$t \cong \frac{7{,}643}{2}$

$t \cong 3{,}821$



3,821