

CTA.171.MATI-1 Campus Cubatão

Profº Luciano Reis

Aluno: Antoniel Lemos de Menezes

FUNÇÃO LOGARÍTMICA

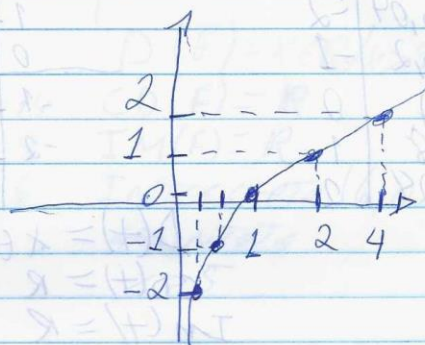
EXERCÍCIOS DE AULA

ALUNO: ANTONIEL LEMOS DE MENEZES

①

A) $y = \log_2 x$

x	y
-2	$2^{-2} = \frac{1}{4} = 0,25$
-1	$2^{-1} = \frac{1}{2} = 0,5$
0	$2^0 = 1$
1	$2^1 = 2$
2	$2^2 = 4$



CRESCENTE

$O(T) = \{x \in \mathbb{R} \mid x > 0\} = \mathbb{R}^+$

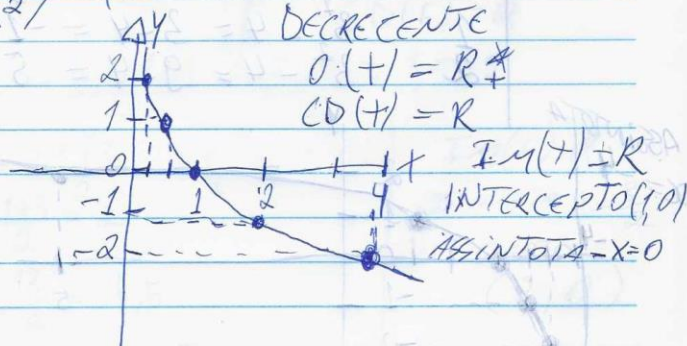
$CD(T) = \mathbb{R}$

$IM(T) = \mathbb{R}$

INTERCEPTO (1,0) ASSÍNTOTA $x=0$

② $y = \log_{\frac{1}{2}} x \quad \left(\frac{1}{2}\right)^y = x$

x	y
4	-2
2	-1
1	0
$\frac{1}{2}$	1
$\frac{1}{4}$	2



DECRESCENTE

$O(T) = \mathbb{R}^+$

$CD(T) = \mathbb{R}$

$IM(T) = \mathbb{R}$

INTERCEPTO (1,0)

ASSÍNTOTA $x=0$

①

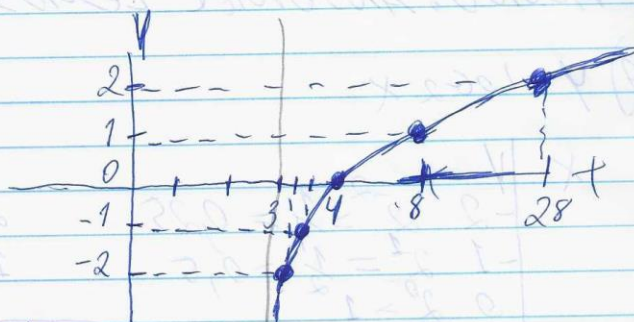
C) $y = \log_5 (x-3)$

$5^y = x-3$

$5^y + 3 = x$

ASINTOTA $\rightarrow x=3$

x	y
3,04	-2
3,2	-1
4	0
8	1
28	2



$D(+)=x \in \mathbb{R} \quad x > 3$

$CD(+)=\mathbb{R}$

$IM(+)=\mathbb{R}$ INTERCEPTO (4,0)

D) $y = \log_3 (x+4)$

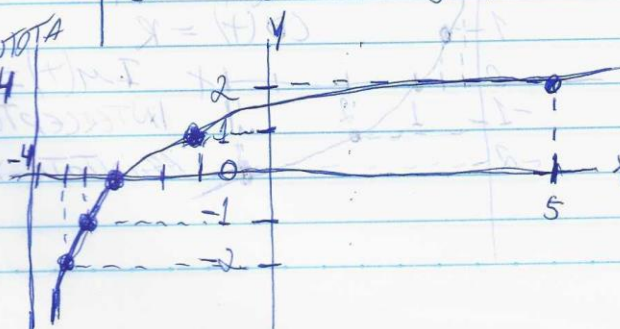
$3^y = x+4$

$3^y - 4 = x$

x	y
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-2	$3^{-2} - 4 = 0,11 - 4 = -3,88$
-1	$3^{-1} - 4 = 0,33 - 4 = -3,66$
0	$3^0 - 4 = 1 - 4 = -3$
1	$3^1 - 4 = 3 - 4 = -1$
2	$3^2 - 4 = 9 - 4 = 5$

ASINTOTA
 $x=-4$



$D(F)=x \in \mathbb{R} \quad x > -4$

$CD(F)=\mathbb{R}$

$IM(F)=\mathbb{R}$

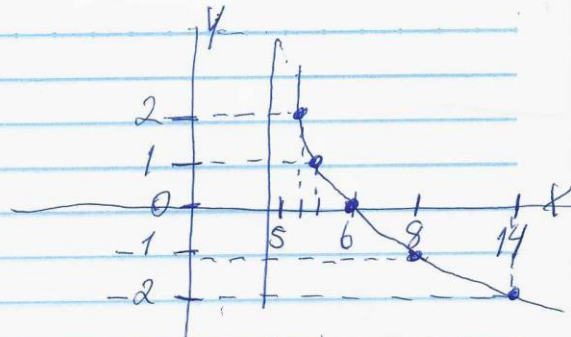
INTERCEPTO $x=-3,0$

① E)

$$y = \log_{\frac{1}{3}}(x-5)$$

$$\left(\frac{1}{3}\right)^y = x-5$$

$$\left(\frac{1}{3}\right)^y + 5 = x$$



$$D(F) = \{x \in \mathbb{R} / x > 5\}$$

$$CD(F) = \mathbb{R}$$

$$IM(F) = \mathbb{R}$$

INTERCEPTO (6, 0)

ASSINTOTA

$$x = 5$$

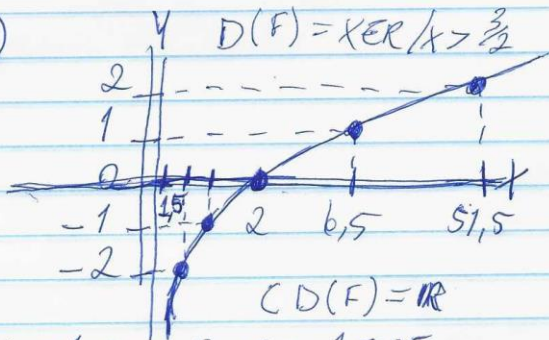
x	y
-2	$\left(\frac{1}{3}\right)^{-2} + 5 = 9 + 5 = 14$
-1	$\left(\frac{1}{3}\right)^{-1} + 5 = 3 + 5 = 8$
0	$\left(\frac{1}{3}\right)^0 + 5 = 1 + 5 = 6$
1	$\left(\frac{1}{3}\right)^1 + 5 = 5,33$
2	$\left(\frac{1}{3}\right)^2 + 5 = 5,11$

F) $y = \log(2x-3)$

$$10^y = 2x-3$$

$$10^y + 3 = 2x$$

$$\frac{10^y + 3}{2} = x$$



$$D(F) = \{x \in \mathbb{R} / x > \frac{3}{2}\}$$

$$CD(F) = \mathbb{R}$$

$$IM(F) = \mathbb{R}$$

ASSINTOTA $x = \frac{3}{2}$

INTERCEPTO

$$(2, 0)$$

x	y
-2	$\frac{10^{-2} + 3}{2} = \frac{0,01 + 3}{2} = \frac{3,01}{2} = 1,505$
-1	$\frac{10^{-1} + 3}{2} = \frac{0,1 + 3}{2} = \frac{3,1}{2} = 1,55$
0	$\frac{10^0 + 3}{2} = \frac{1 + 3}{2} = 2$
1	$\frac{10^1 + 3}{2} = \frac{13}{2} = 6,5$
2	$\frac{10^2 + 3}{2} = \frac{103}{2} = 51,5$