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Função Exponencial

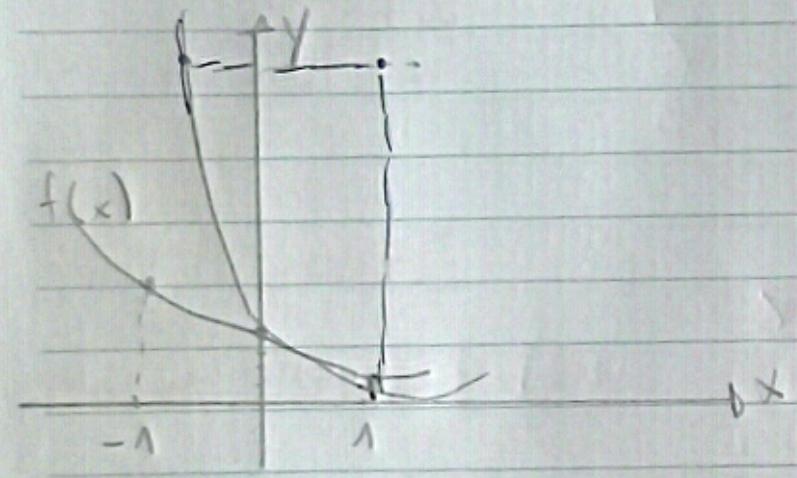
Tarefa básica (Respostas

01 a) $f(x) = \left(\frac{2}{3}\right)^x$

x	f(x)
-1	$\frac{3}{2}$
0	1
1	$\frac{2}{3}$

$g(x) = \left(\frac{1}{5}\right)^x$

x	g(x)
-1	5
0	1
1	$\frac{1}{5}$



b) $\left(\frac{1}{5}\right)^{\frac{2}{3}}$ ou $\left(\frac{2}{3}\right) \rightarrow \left(\frac{2}{3}\right)^{\frac{1}{5}} > \left(\frac{1}{5}\right)^{\frac{2}{3}}$

02 Pessoas → $P(T) = P_0 = 2^T$ — $R(T) = P(T)$

Ratos $RT = RO \cdot 4^T$ — $RO \cdot 2^T = 112.000$

1992 — $RO = 112.000$

Ratos = 7.000 — $R(0) = RO \cdot 4^0 = 7000$

Pessoas = 11.200 — $RO = 7.000$

$7000 \cdot 4^T = 112.000 \cdot 2^T$

$\frac{4^T}{2^T} = \frac{112.000}{7.000} = 16$

$\left(\frac{4^T}{2^T}\right) = 16$

$2^T = 2^4$

$T = 4$ | 1996

③ $N(T) = 2 \cdot 10^{2T}$

$N(2) = 2 \cdot N_0$

$\alpha \cdot 10^{\alpha \cdot 2} = 2 \cdot 2 \cdot 10^{\alpha \cdot 0}$

$2\alpha \cdot 1$

$2 \cdot 10^{2T} = 2\alpha \cdot 1$

$10^{2\alpha} = \alpha$

$N(6) =$

$\alpha \cdot 10^{\alpha \cdot 6} = \alpha 10^{6\alpha} = \alpha \cdot 8$

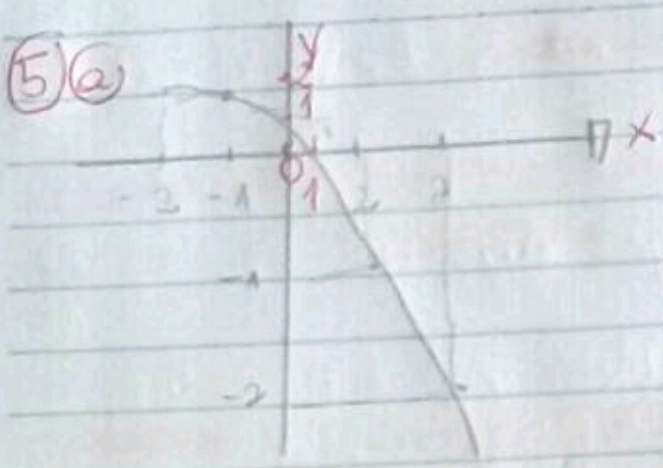
D

④ $y = a^x + b$

$y = 2^x - 1$ A

⑤

⑤ ②



$y = -5^x + 2$

x	y	
-2	1,96	$-5^{-2}+2 = \frac{1}{5^2}+2 = 0,01+2 = 1,96$
-1	1,08	$-5^{-1}+2 = \frac{1}{5}+2 = 0,$
0	1	-5^0+2
1	-3	-5^1+2
2	-23	-5^2+2

D(f) = ℝ

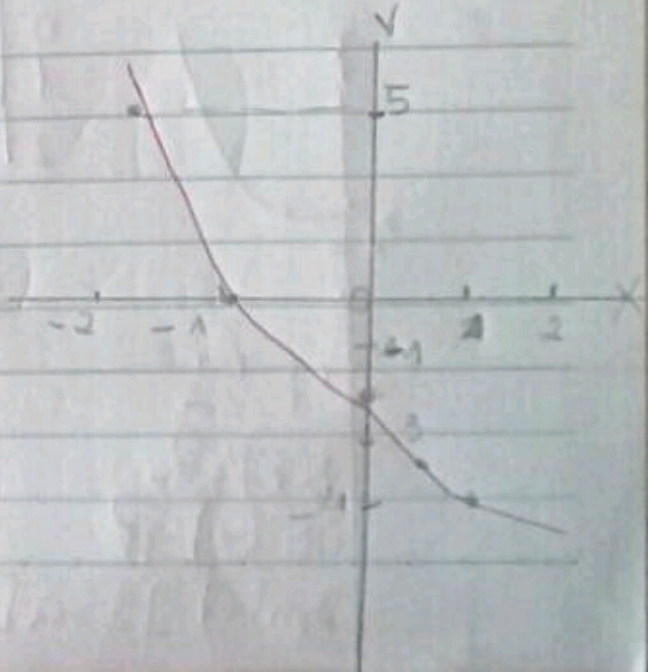
D(f) = ℝ

Im = (f) $]-\infty, 2[$

(0,1)

Asint: $y = 2$

⑥ $y = \left(\frac{1}{3}\right)^x - 4$



x	y	
-2	5	3^2-4 $\quad$ $9-4$
-1	-1	3^1-4 $\quad$ $3-4$
0	-3	$1-4$ $\quad$ -3
1	$-\frac{11}{3}$	$\frac{1}{3}-4$ $\quad$ $\frac{1-12}{3} = -\frac{11}{3}$
2	$-\frac{35}{9}$	$\frac{1}{9}-4$ $\quad$ $\frac{1-36}{9} = -\frac{35}{9}$

(B) $D(f) = \mathbb{R}$

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

$Im(f) =]-4, +\infty[$

10 - 9

assíntota $\Delta y = -4$

(C) $y = 5^{\frac{3x-4}{2}} + 3 \Rightarrow y = 5^u + 3$

u	y
-2	$5^{-2} + 3 = 0,04 + 3 = 3,04$
-1	$5^{-1} + 3 = 0,2 + 3 = 3,2$
0	$5^{-0} + 3 = 1 + 3 = 4$
1	$5^1 + 3 = 5 + 3 = 8$
2	$5^2 + 3 = 25 + 3 = 28$

$2u = 3x - 4$

$2u + 4 = 3x$

$\frac{2u+4}{3} = x$

u	x
-2	0
-1	0,661
0	1,2...
1	
2	2,4

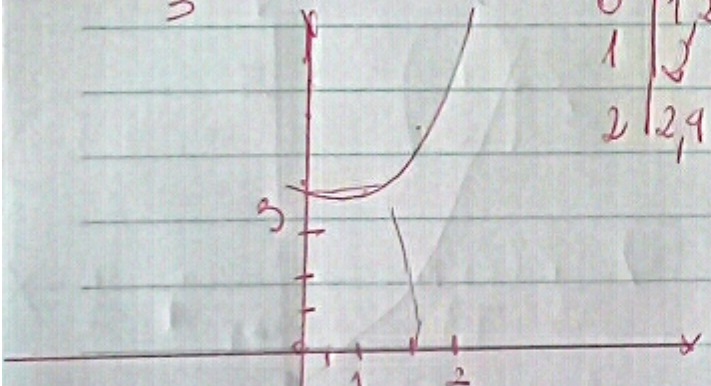
$\frac{2(-2)+4}{3} =$

$\frac{2(-1)+4}{3}$

$\frac{2(0)+4}{3}$

$\frac{2(1)+4}{3}$

$\frac{2(2)+4}{3}$



$D(f) = \mathbb{R}$

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

$Im(f) =]3, +\infty[$ (0, 3,01) ass: $y = 3$