Nome: Eduardo Henrique de A. Izidorio
Matrícula: 2020000315
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Avaliação 1

1- a) $f(x)=\frac{1}{3x-7}$

$3x-7\neq 0$

$3x\neq 7$

$x\neq \frac{7}{3}$

$D=\{x\in\mathbb{R} / x\neq 7/3\}$

b) $g(x)=\sqrt[3]{x^2-1}$

$D=\mathbb{R}$.

$D=\{x\in\mathbb{R} / x=\mathbb{R}\}$

c) $f(x)=\log_{32}(x^3-8)$

$x^3-8>0$

$x^3>8$

$x>\sqrt[3]{8}$

$x>2$.

$D=\{x\in\mathbb{R} / x>2\}$.

2- $f(0)=ax+b=\frac{\sqrt{3}}{2} \rightarrow a.0+b=\frac{\sqrt{3}}{2} \rightarrow \boxed{b=\frac{\sqrt{3}}{2}}$

$f(-2)=ax+b=\frac{\sqrt{3}-1}{2} \rightarrow a.(-2)+b=\frac{\sqrt{3}-1}{2} \rightarrow -2a+b=\frac{\sqrt{3}-1}{2}$

$-2a+\frac{\sqrt{3}}{2}=\frac{\sqrt{3}-1}{2} \rightarrow -2a=\frac{\sqrt{3}-1}{2}-\frac{\sqrt{3}}{2} \rightarrow -2a=\cancel{\frac{\sqrt{3}}{2}}-\frac{1}{2}-\cancel{\frac{\sqrt{3}}{2}}$

$-2a=-\frac{1}{2}\cdot(-1) \rightarrow \frac{2a}{1}\times\frac{1}{2} \rightarrow 4a=1 \rightarrow \boxed{a=\frac{1}{4}}$.

$f(x)=\frac{1}{4}x+\frac{\sqrt{3}}{2} \rightarrow$ continua

3- $f(x)=3x^2-12x+8$

$a>0$

$\Delta=b^2-4.a.c$

$\Delta=(-12)^2-4.3.8$

$\Delta=144-96$

$\Delta=48$.

Possui Valor de mínimo, pois, $y=-4<0$;

$D=\{x\in\mathbb{R} / x=\mathbb{R}\}$

$Img=\{y\in\mathbb{R} / y\geq -4\}$

$Y_v=\frac{-\Delta}{4.a} \rightarrow Y_v=\frac{-48}{4.3} \rightarrow Y_v=\frac{-48}{12}$

$\boxed{Y_v=-4}$.

$X_v=2$.

ponto mínimo

4- $f(x)=x^2+(1-\sqrt{3})x-\sqrt{3}$

$\Delta=b^2-4.a.c$

$\Delta=(1-\sqrt{3})^2-4.1.(-\sqrt{3})$

$\Delta=1^2-2.\sqrt{3}+(\sqrt{3})^2+4\sqrt{3}$

$\Delta=1-2\sqrt{3}+3+4\sqrt{3}$

$\Delta=4+2\sqrt{3}=(1+\sqrt{3})^2$

$\Delta=(1+\sqrt{3})^2$

$X_1=\frac{-b+\sqrt{\Delta}}{2.a}=\frac{-(1-\sqrt{3})+\sqrt{(1+\sqrt{3})^2}}{2.1}$

$=\frac{\cancel{-1}+\sqrt{3}\cancel{+1}+\sqrt{3}}{2}=\frac{2\sqrt{3}}{2}$

$\boxed{X_1=\sqrt{3}}$.

$|x_1^2+x_2^2| \rightarrow |1+3|$

$|(-1)^2+(\sqrt{3})^2| \rightarrow |4|=4$.

$X_2=\frac{-b-\sqrt{\Delta}}{2.a}=\frac{-(1-\sqrt{3})-\sqrt{(1+\sqrt{3})^2}}{2.1}=\frac{-1\cancel{+\sqrt{3}}-1\cancel{-\sqrt{3}}}{2}$

$=-\frac{2}{2} \rightarrow \boxed{x^2=-1}$.

Continuação da 2)

$$f(x) = \frac{1}{4}x + \frac{\sqrt{3}}{2}$$

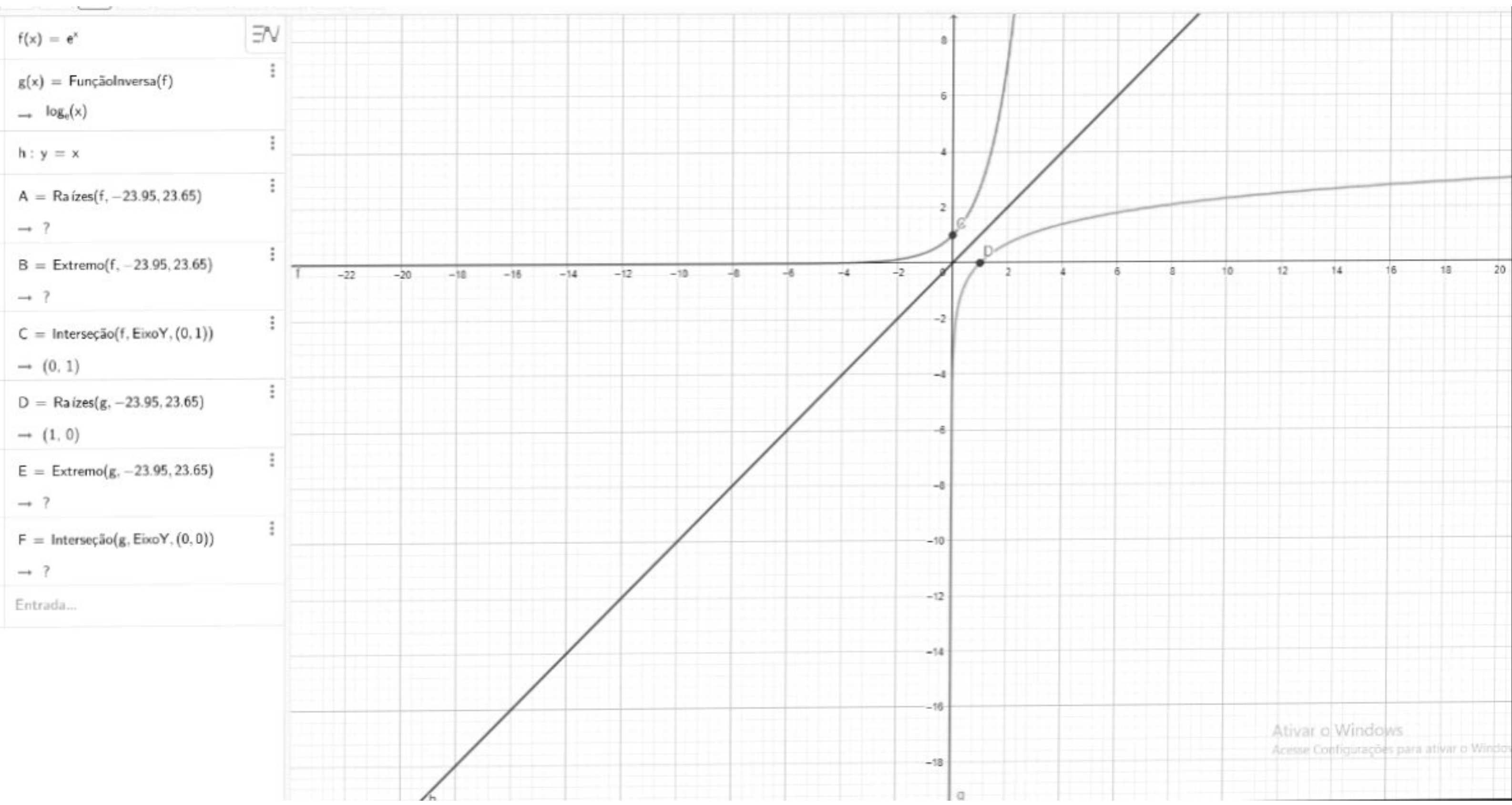
$$f(\sqrt{3}) = \frac{1}{4} \cdot (\sqrt{3}) + \frac{\sqrt{3}}{2}$$

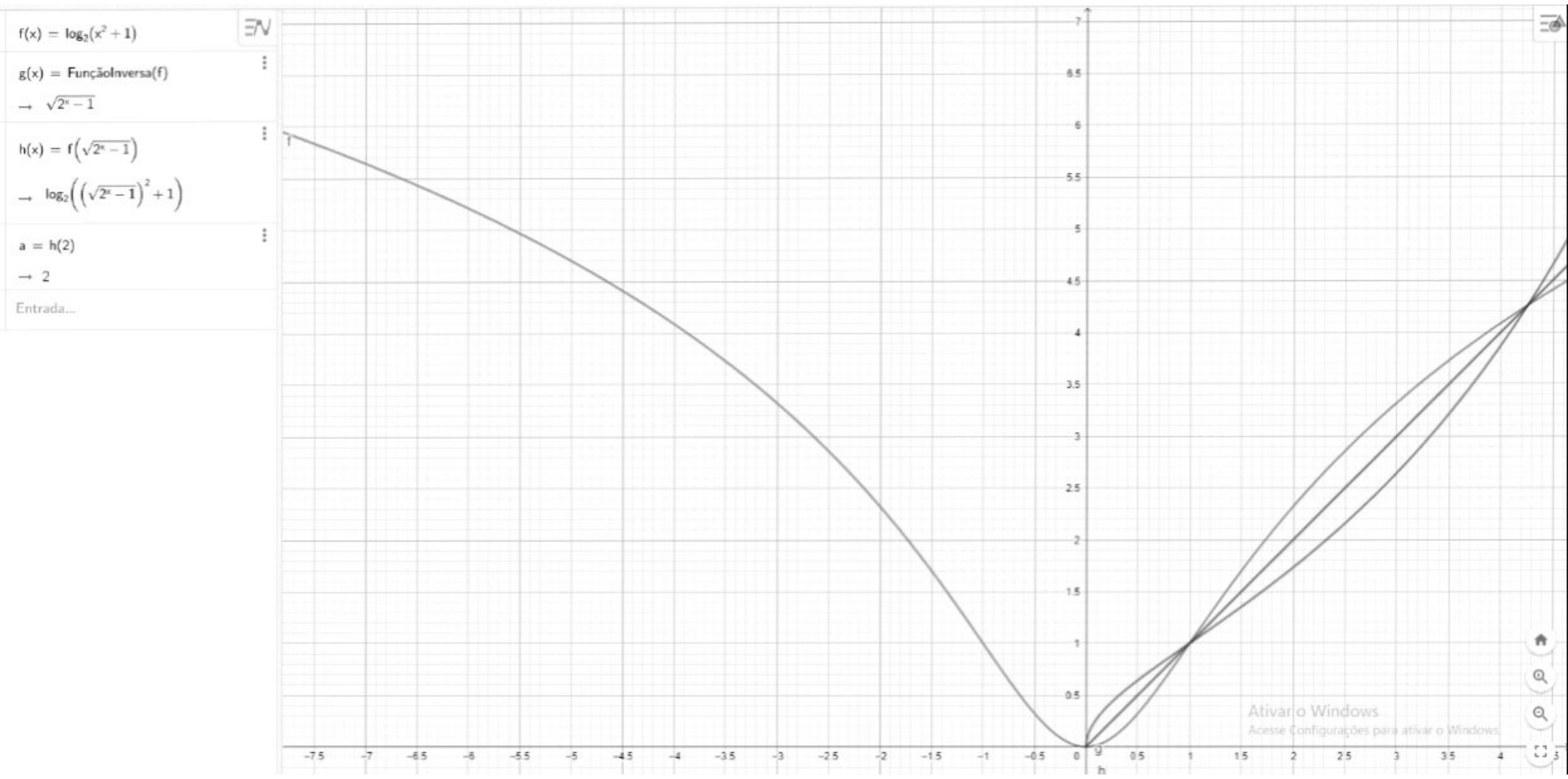
$$f(\sqrt{3}) = \frac{\sqrt{3}}{4} + \frac{\sqrt{3}}{2}$$

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

$$\boxed{f(\sqrt{3}) = \frac{3\sqrt{3}}{4}}$$

Resposta da 5 e 6 nas imagens a seguir.


f(x) = e^x
g(x) = FunçãoInversa(f)
→ log_e(x)
h : y = x
A = Raízes(f, −23.95, 23.65)
→ ?
B = Extremo(f, −23.95, 23.65)
→ ?
C = Interseção(f, EixoY, (0, 1))
→ (0, 1)
D = Raízes(g, −23.95, 23.65)
→ (1, 0)
E = Extremo(g, −23.95, 23.65)
→ ?
F = Interseção(g, EixoY, (0, 0))
→ ?
Entrada...
C
D
Ativar o Windows


$f(x) = \log_2(x^2+1)$
$g(x) = $ FunçãoInversa(f)
$\rightarrow \sqrt{2^x - 1}$
$h(x) = f\left(\sqrt{2^x - 1}\right)$
$\rightarrow \log_2\left(\left(\sqrt{2^x - 1}\right)^2 + 1\right)$
$a = h(2)$
$\rightarrow 2$
Entrada...
Ativar o Windows
Acesse Configurações para ativar o Windows