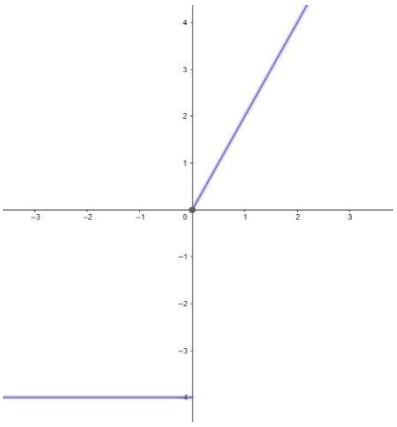
RESPOSTAS

QUESTÃO 1

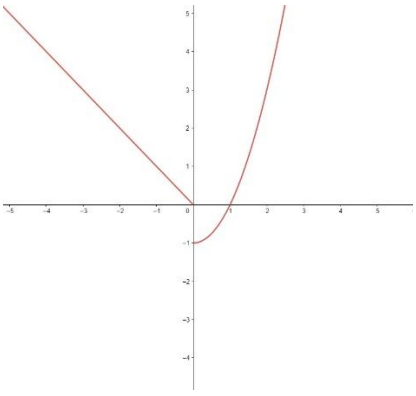
a) $dom(f) = \mathbb{R}$
b) $dom(f) = \mathbb{R} - \{-2\}$
c) $dom(h) = \mathbb{R} - \{-2, 2\}$
d) $dom(p) = \{x \in \mathbb{R}\,; x \geq 1\}$
e) $dom(q) = \{x \in \mathbb{R}\,; x > -1\}$
f) $dom(r) = \{x \in \mathbb{R}\,; x > -1\}$
g) $dom(s) = \mathbb{R}$
h) $dom(t) = \mathbb{R} - \left\{-\frac{3}{2}\right\}$
i) $dom(u) = \{x \in \mathbb{R}\,; x \neq 3\}$

QUESTÃO 2

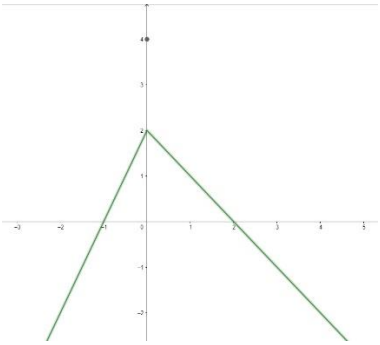
a)



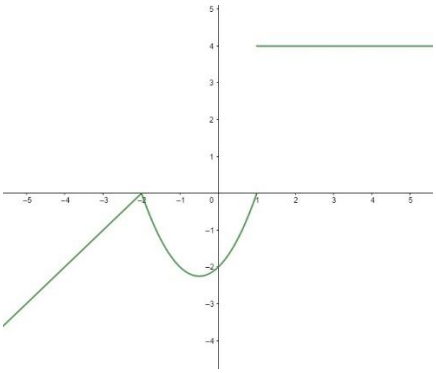
b)



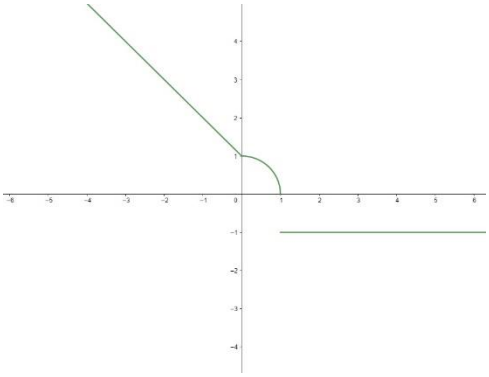
c)

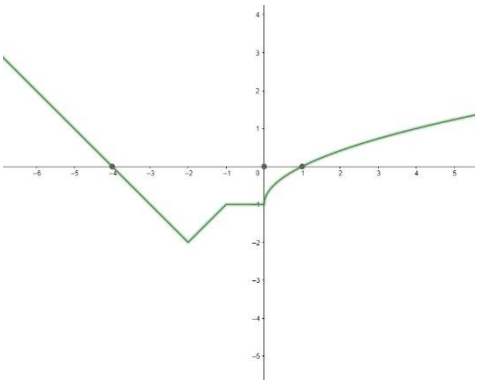


d)



e)

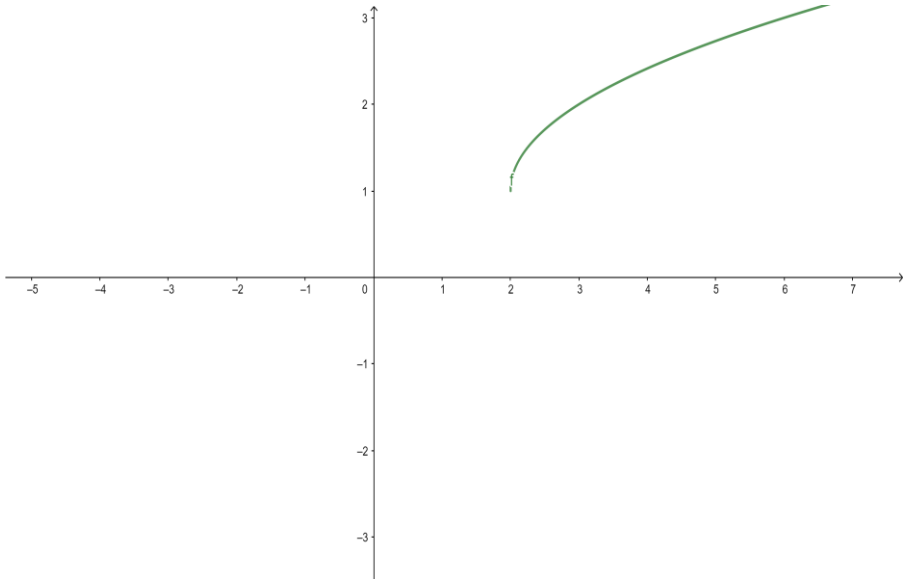




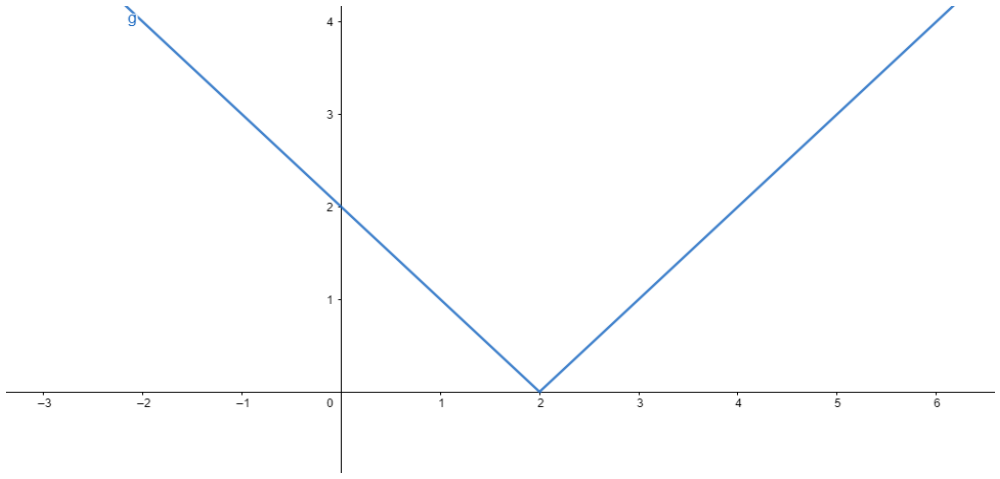
f)

Questão 3

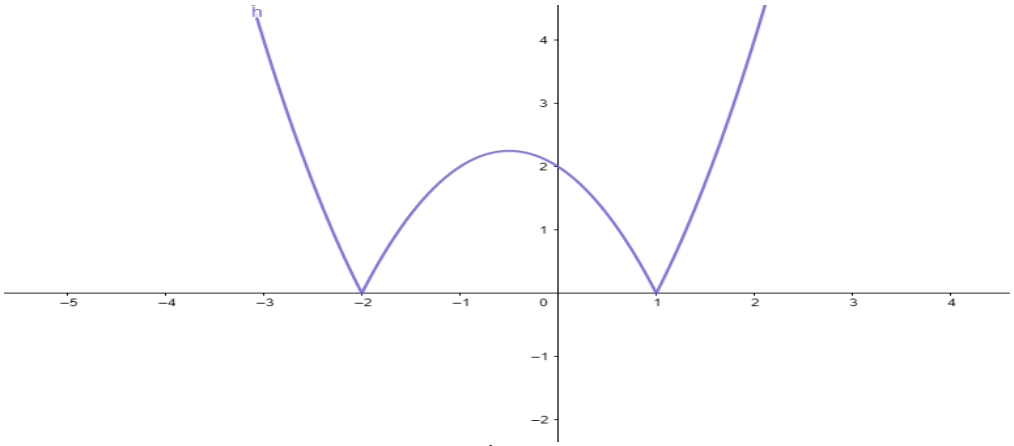
$Dom(f) = \{x \in \mathbb{R};\ x \geq 2\}$ e $Im(f) = \{y \in \mathbb{R}; y \geq 1\}$



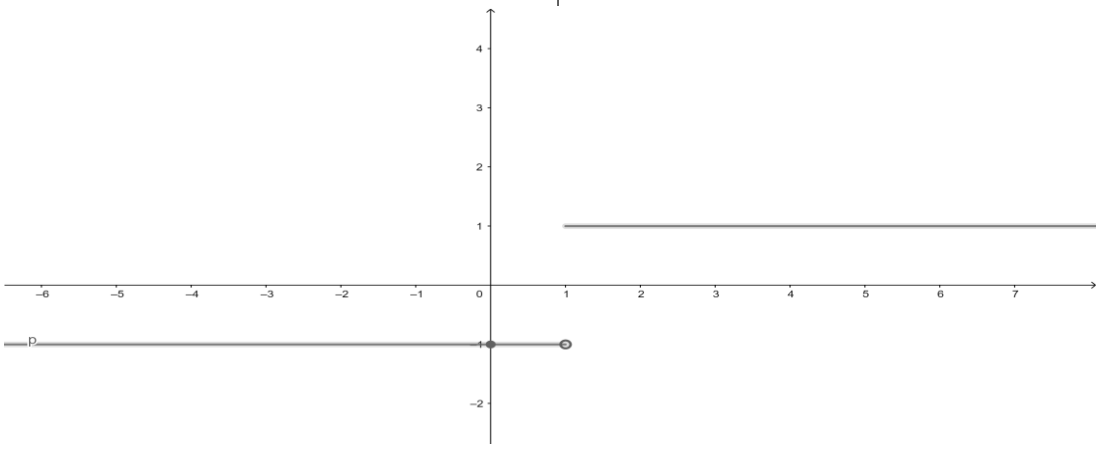
Questão 4



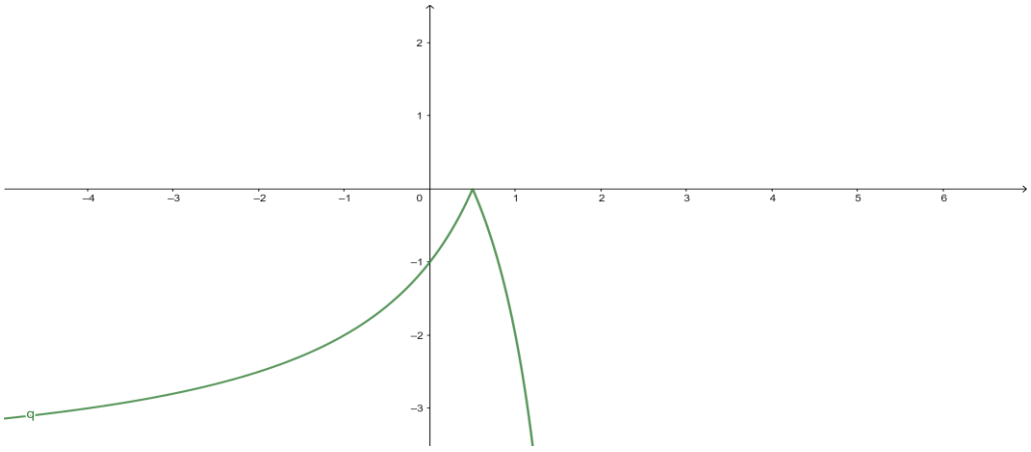
a)



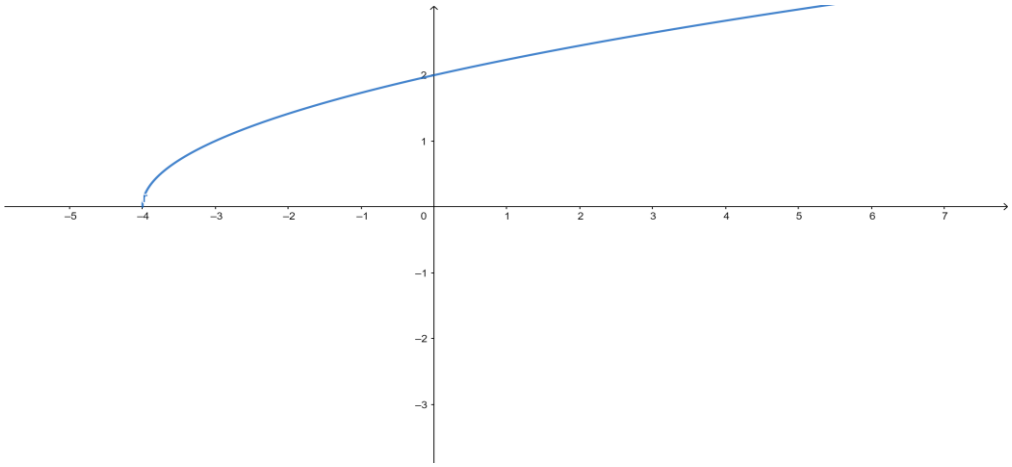
b)



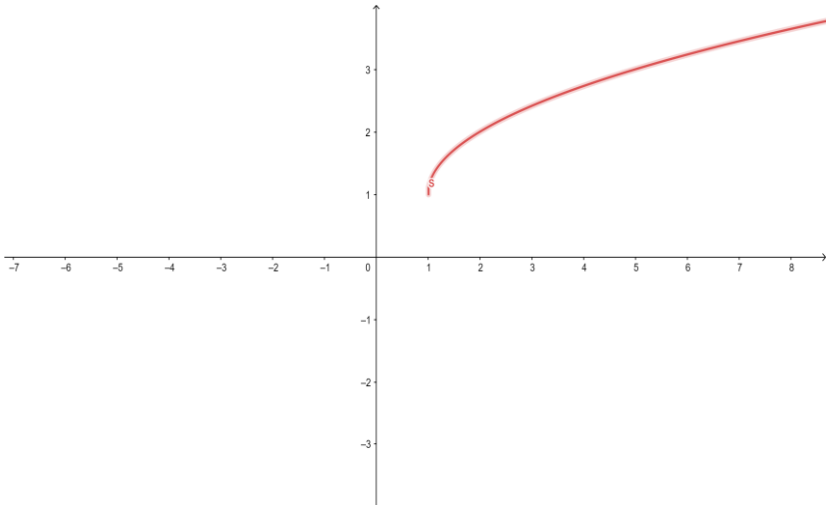
c)



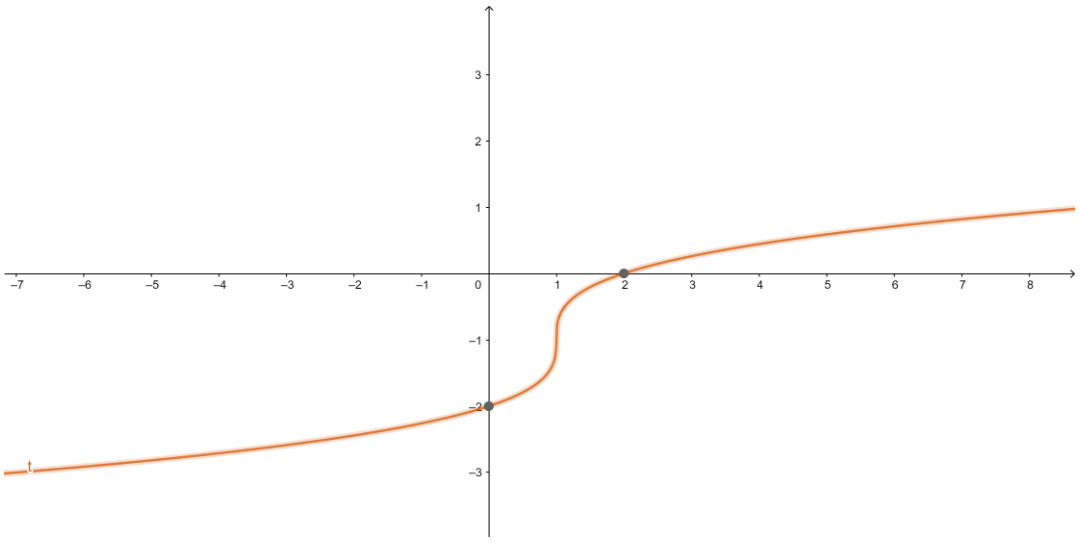
d)


−5 −4 −3 −2 −1 0 1 2 3 4 5 6 7
2 1 −1 −2 −3

e)

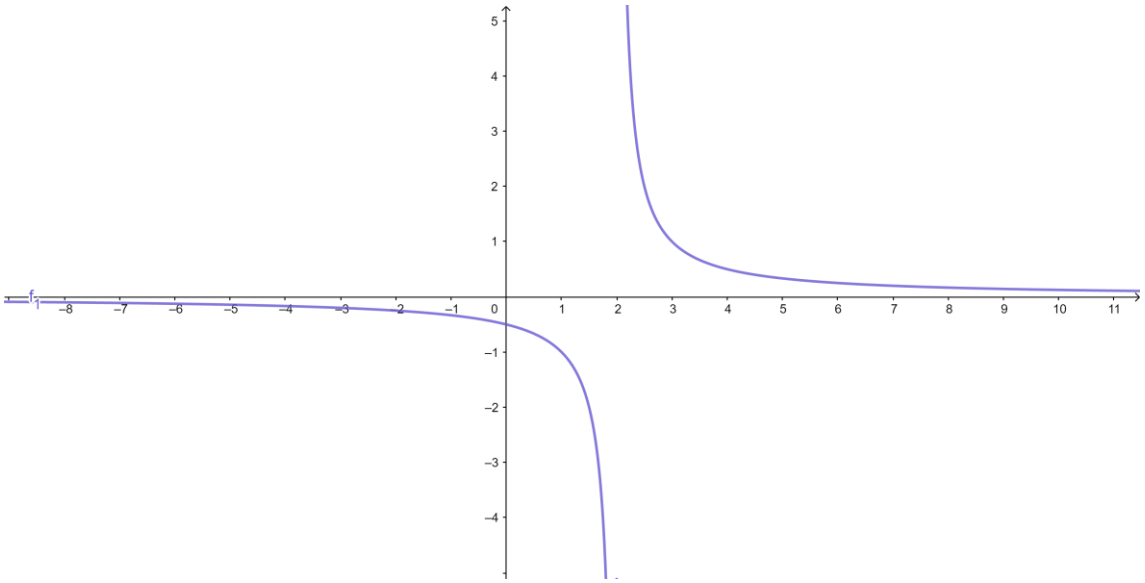

s
−7 −6 −5 −4 −3 −2 −1 0 1 2 3 4 5 6 7 8
3 2 1 −1 −2 −3

f)

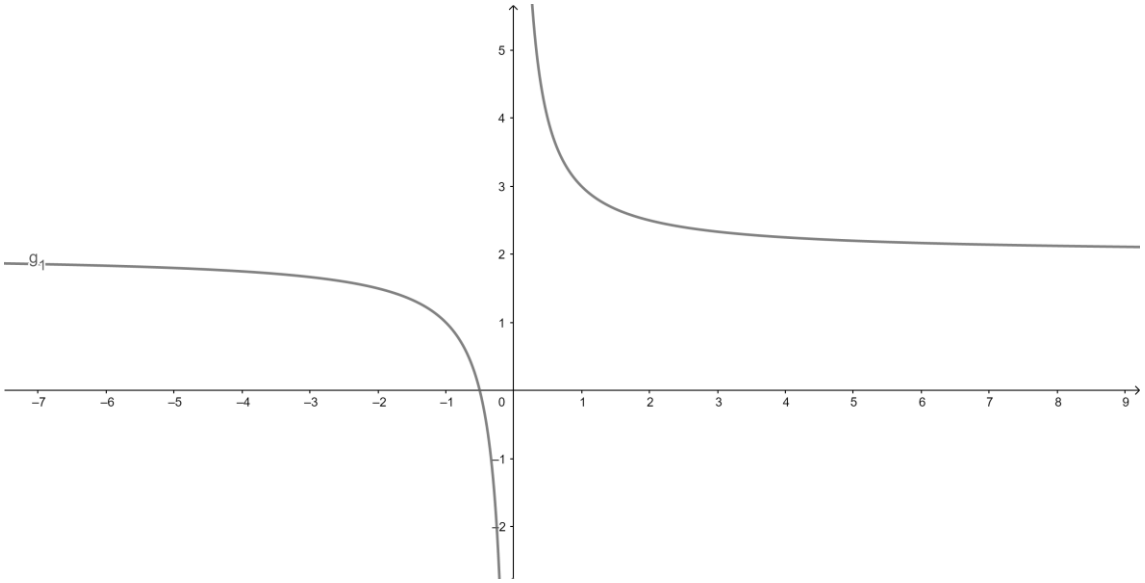

t
−7 −6 −5 −4 −3 −2 −1 0 1 2 3 4 5 6 7 8
3 2 1 −1 −2 −3

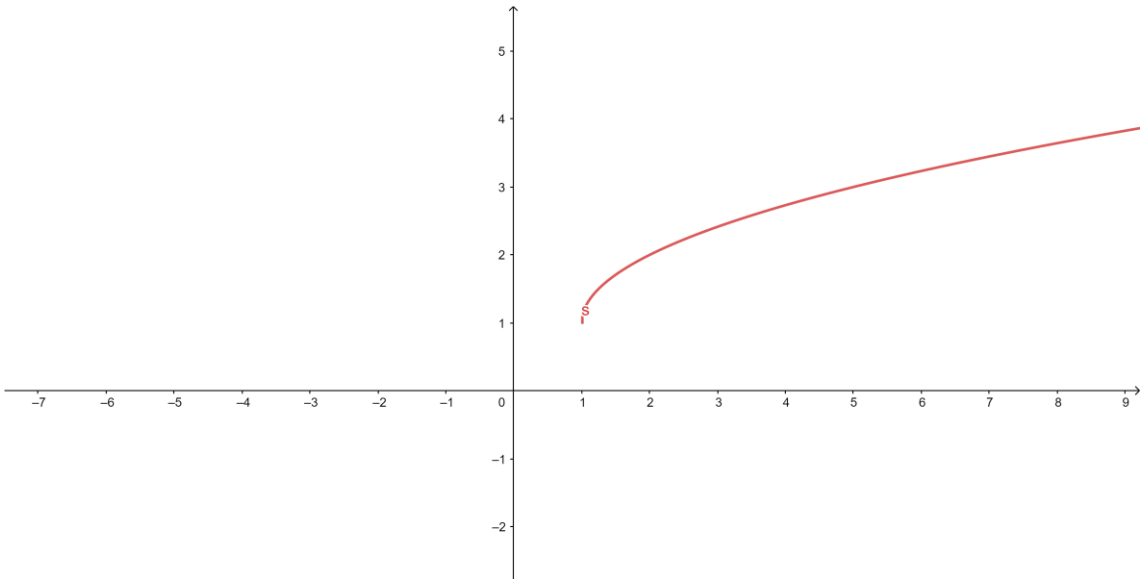
g)

h)

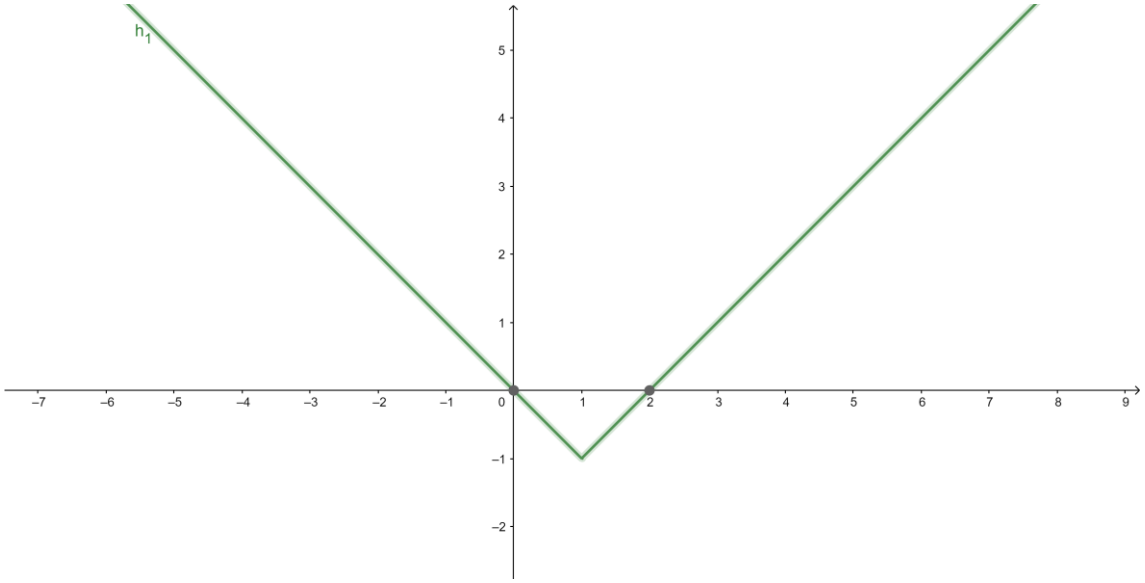


i)



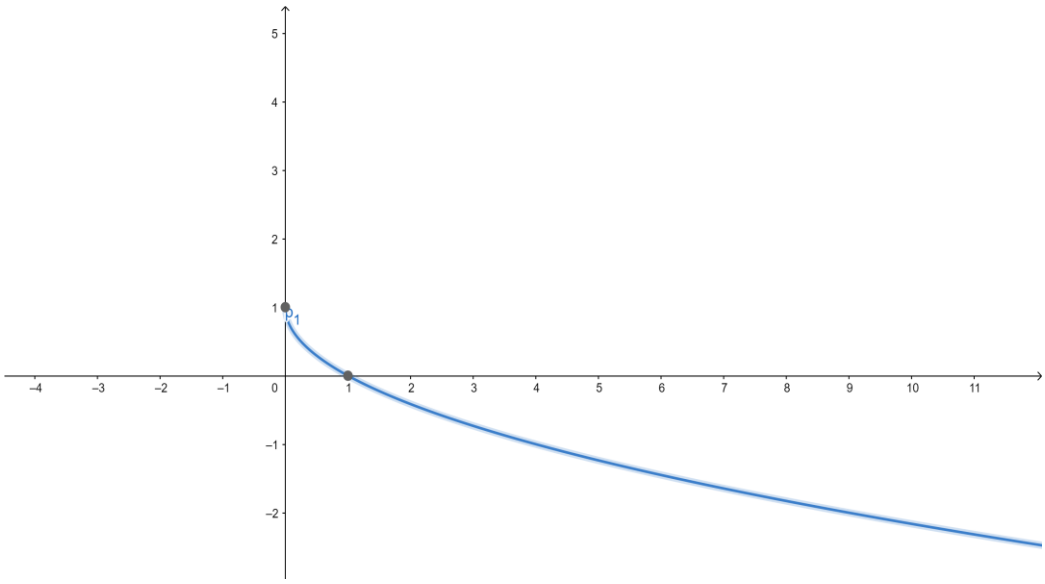


j)



k)

I)



QUESTÃO 5

a) $f(x) = x^2 - 2x - 1$
b) $f(x) = x^2 - 4x + 3$
c) $\boldsymbol{f(x)} = x^2 - 4x + 5$
d) $\boldsymbol{f(x)} = x^2 + 4x + 5$

Questão 6

a) $(f \circ g)(x) = x - 9\,,\ dom(f \circ g) = \mathbb{R}$
$(g \circ f)(x) = \sqrt{x^2 - 9}, dom((g \circ f) = \{x \in \mathbb{R}; x \geq 3\}$

b) $(f \circ g)(x) = \frac{1}{x^2+2x-15}, dom(f \circ g) = \{x \in \mathbb{R}; x \neq 3\ e\ x \neq -5\}$
$(g \circ f)(x) = \frac{1}{x^2} + \frac{2}{x} - 15, dom(g \circ f) = \{x \neq 0\}$

c) $(f \circ g)(x) = ln\,(x^3 - 1), dom(f \circ g) = \{x \in \mathbb{R}; x > 1\}$
$(g \circ f)(x) = 3\ln(x) - 1, dom(g \circ f) = \{x \in \mathbb{R}; x > 0\}$

QUESTÃO 7

a) $(f \circ g)(x) = 4x^2 - 4x - 8$
$(g \circ f)(x) = 2x^2 + 8x - 13$

b) $(f \circ g)(2) = 0$
$(g \circ f)(2) = 11$

c) $x = 3$ e $x = -2$

QUESTÃO 8

a) $domf \circ g = \{x \in \mathbb{R};\ x \leq -1\ e\ x \geq 4\}$
$dom(g \circ f) = \{x \in \mathbb{R}; x \geq 0\}$

b) $domf \circ g = \left\{x \in \mathbb{R}; x \leq \frac{1}{2}\ e\ x \geq 2\right\}$
$dom(g \circ f) = \{x \in \mathbb{R}; x \geq 1\}$

QUESTÃO 9

a) $dom(f) = \{x \in \mathbb{R}; x \neq 2\}$
$dom(g) = \mathbb{R}$

b) $(f \circ g)(x) = \frac{2x+4}{2x+1}$
$dom(f \circ g) = \left\{x \in \mathbb{R}; x \neq -\frac{1}{2}\right\}$

c) $(g \circ f)(x) = \frac{5x-4}{x-2}$
$dom(f \circ g) = \{x \in \mathbb{R}; x \neq 2\}$

QUESTÃO 10

$$a = 1$$

QUESTÃO 11

a) $(f \circ g)$
b) $(j \circ g)$
c) $(g \circ g)$
d) $(j \circ j)$
e) g $\circ (h \circ f)$
f) (f $\circ h$)
g) $(j \circ f)$
h) $(g \circ h)$
i) $(h \circ h)$
j) $h \circ (j \circ f)$
k) $j \circ (g \circ f)$
l) $g \circ (f \circ h)$

QUESTÃO 12

a) $f(x) = \ln(x),\ g(x) = x^2 + x - 2$ e $dom(h) = \{x \in \mathbb{R}; x \neq 3\ e\ x \neq -5\}$
b) $f(x) = \ln x\,, g(x) = \ 1 + sen^2 x\ e\ dom(h) = \{x \in \mathbb{R}; x \neq \frac{3\pi}{2} + k\pi\}$
c) $f(x) = \sqrt{x}, g(x) = x^2 - 1$ e $dom(h) = \{x \in \mathbb{R}; x \neq 1\}$
d) $f(x) = \frac{1}{x}, g(x) = \ x^2 + x$ e $dom(h) = \{x \in \mathbb{R}; x \neq 0\ ou\ x \neq -1\}$
e) $f(x) = e^x, g(x) = x + \cos(x)$ e $dom(h) = \mathbb{R}$
f) $f(x) = \cos(x)\,, g(x) = x + e^x$ e $dom(h) = \mathbb{R}$
g) $f(x) = 1 - x, g(x) = cos^2(x)$ e $dom(h) = \mathbb{R}$
h) $f(x) = sen(x), g(x) = x^2$ e $dom(h) = \mathbb{R}$

QUESTÃO 13

$$g(x) = \frac{x^2 + 2}{3}$$

QUESTÃO 14

$$g(x) = \frac{x^2 - 2x - 4}{2}$$

QUESTÃO 15

a) 2
b) 9
c) 10
d) $\frac{1}{2}$
e) 216
f) $\frac{81}{2}$

QUESTÃO 16

a) $\ln 5$
b) $\ln(x - 3)$
c) $2 \ln t$
d) 0
e) ln(2x+1)
f) $\ln(t - 1)$

QUESTÃO 17

a) $y = e^{2x+4}$
b) $y = e^{5x} + 40$
c) $y = 2xe^x + 1$

d) $y = sen(x) + 1$