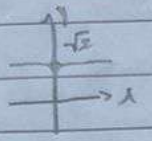
Giovani Zarella

LISTA 4

1-)

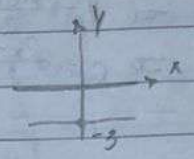
a-) $f(x) = \sqrt{2}$

$y = \sqrt{2}$



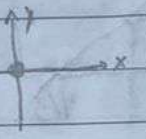
b-) $f(x) = -3$

$y = -3$



c-) $f(x) = 0$

$y = 0$

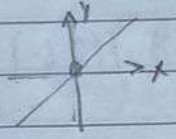


d-) $f(x) = x$

$y = x$

e-) $f(x) = -x$

$y = -x$



$x = 0 \Rightarrow y = 0 \Rightarrow y = 0$

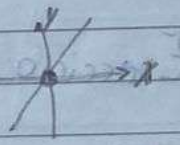
$y = 0 \Rightarrow 0 = x \Rightarrow x = 0$

$x = 0 \Rightarrow y = -0 \Rightarrow y = 0$

$y = 0 \Rightarrow 0 = -y \Rightarrow x = 0$

f-) $f(x) = 2x$

$y = 2x$



g-) $f(x) = 3x + 1$

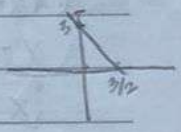
$y = 3x + 1$

$x = 0 \Rightarrow y = 3.0 + 1 \Rightarrow y = 1 \quad (0, 1)$

$y = 0 \Rightarrow 0 = 3x + 1 \Rightarrow x = -1/3 \quad (-1/3, 0)$

i-) $f(x) = -2x + 3$

$y = -2x + 3$

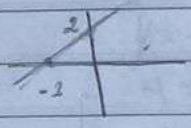


$x = 0 \Rightarrow y = -2.0 + 3 \Rightarrow y = 3$

$y = 0 \Rightarrow 0 = -2x + 3 \Rightarrow x = \frac{3}{2}$

h-) $f(x) = x + 2$

$y = x + 2$



$x = 0 \Rightarrow y = 0 + 2 \Rightarrow y = 2 \quad (0, 2)$

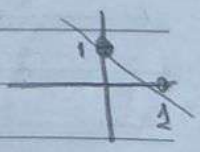
$y = 0 \Rightarrow 0 = x + 2 \Rightarrow x = -2 \quad (-2, 0)$

j-) $f(x) = -x + 1$

$y = -x + 1$

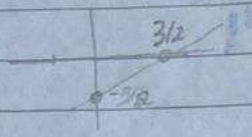
$x = 0 \Rightarrow y = 0 + 1 \Rightarrow y = 1$

$y = 0 \Rightarrow 0 = -x + 1 \Rightarrow x = 1$



/ /

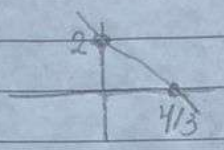
K-) $f(x) = \frac{2x-3}{2}$



$x=0 \Rightarrow y = \frac{2\cdot 0-3}{2} \Rightarrow y = -\frac{3}{2}$

$y=0 \Rightarrow 0 = \frac{2x-3}{2} \Rightarrow x = \frac{3}{2}$

L-) $f(x) = \frac{4-3x}{2}$



$x=0 \Rightarrow y = \frac{4-3\cdot 0}{2} \Rightarrow y = 2$

$y=0 \Rightarrow 0 = \frac{4-3x}{2} \Rightarrow x = \frac{4}{3}$

Exercício 10 letra L

L-) $(x-3)^5 \cdot (2x+3)^6 < 0$

I) $(x-3)^5 < 0$

$(\sqrt[5]{x-3})^5 < \sqrt[5]{0}$

$x-3 < 0$

$\boxed{x < 3}$

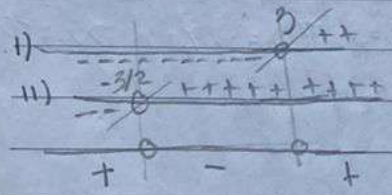
II) $(2x+3)^6 < 0$

$(\sqrt[6]{2x+3})^6 < \sqrt[6]{0}$

$2x+3 < 0$

$2x < -3$

$x < -\frac{3}{2}$



$S = \{x \in \mathbb{R} \mid -3/2 < x < 3\}$

Dúvida

Paula Dramon

11

2-)

a-) P(2,3), Q(3,5)

ER = $y = ax + b$

P) $3 = a2 + b$

Q) $5 = a3 + b$

$3 = 2a + b$

$2a + b = 3$

$b = 3 - 2a$

$5 = a3 + 3 - 2a$

$5 - 3 = a$

$2 = a$

$\boxed{a = 2}$

$b = 3 - 2.2$

$\boxed{b = -1}$

$\boxed{y = 2x - 1}$

b-) R(1,-1), S(-1,2)

ER: $y = ax + b$

R) $-1 = a.1 + b$

S) $2 = a.-1 + b$

R) $-1 = a + b$

$-1 - a = b$

$b = -1 - a$

Q) $2 = a.-1 + (-1-a$

$2 = -a - a - 1$

$2 + 1 = -2a$

$3 = -2a \cdot (-1)$

$\boxed{a = \frac{3}{-2}}$

$b = \frac{-1}{1} - \frac{(-3)}{2}$

$b = 1/2$

$\boxed{y = \frac{-3x + 1}{2}}$

3x - 6

Dúvida

c-) A(4,6)

$a = 3$

$y = ax + b$

$6 = 3.4 + b$

$6 = 12 + b$

$6 - 12 = b$

$-6 = b$

$b = -6$

$y = 3x - 6$

d-) B(-4,4)

$a = -2$

$y = -2x + b$

$4 = -2.(-4) + b$

$4 = +8 + b$

$4 - 8 = b$

$-4 = b$

$b = -4$

$y = -2x - 4$

Pauta Branca

/ /

3-) $f(x) = ax + b$

$f(-1) = 3$ $\quad$ $f(1) = 1$

$y = x$ $\quad$ $y = x$

$\boxed{y = -2} \Rightarrow \boxed{x = 3}$ $\quad$ $\boxed{y = 1} \Rightarrow \boxed{x = 1}$

$-1 = a3 + b$ $\quad$ $1 = a1 + b$

$-1 = 3a + b$ $\quad$ $1 = a + b$

$\left.\begin{array}{l} -1 = 3a + b \\ 1 = a + b \end{array}\right\}$ (-1)

$1 = a + b$

$1 - b = a$

4-) $(0, 5)$ $\quad$ $(3, 0)$

a-) $f(x) = 2 \cdot x + m - 3$

$f(0) = 2 \cdot 0 + m - 3$

$\boxed{f(x) = y}: 5 = 0 + m - 3$

$5 + 3 = m$

$\boxed{m = 8}$ //

b-) $f(x) = 2 \cdot x + m - 3$

$0 = 2 \cdot 3 - 3 + m$

$0 = 3 + m$

$-3 = m$

$\boxed{m = -3}$ //

5-)

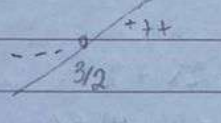
a-) $f(x) = 2x - 3$

$y = x$

$2x - 3 = 0$

$2x = 3$

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



$S = \begin{cases} y < 0, \text{ se } x < \frac{3}{2} \\ y = 0, \text{ se } x = \frac{3}{2} \\ y > 0, \text{ se } x > \frac{3}{2} \end{cases}$

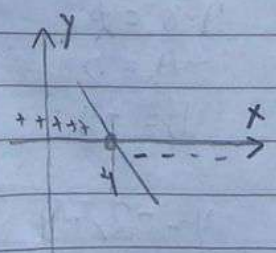
b-) $f(x) = -x + 4$

$y = -x + 4$

$-x + 4 = 0$

$-x = -4 \cdot (-1)$

$x = 4$



$S = \begin{cases} y < 0, \text{ se } x > 4 \\ y = 0, \text{ se } x = 4 \\ y > 0, \text{ se } x < 4 \end{cases}$

Dúvida

Paula Dranca

Obs: Poderia ter isolado o X, passando o 3/2 para o outro lado

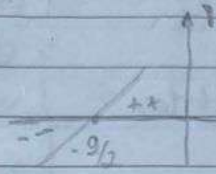
c-) $f(x) = \frac{x}{3} + \frac{3}{2} \Rightarrow f(x) = \frac{2x+9}{6} \Rightarrow \frac{2x+9}{6} = 0$

$2x + 9 = 0 \cdot 6$

$2x + 9 = 0$

$2x = -9$

$x = -\frac{9}{2}$



$S = \begin{cases} y < 0, \text{ se } x < -\frac{9}{2} \\ y = 0, \text{ se } x = -\frac{9}{2} \\ y > 0, \text{ se } x > -\frac{9}{2} \end{cases}$

d-) $f(x) = \frac{-2x+4}{3} \Rightarrow f(x) = \frac{-6x+4}{3} \Rightarrow \frac{-6x+4}{3} = 0$

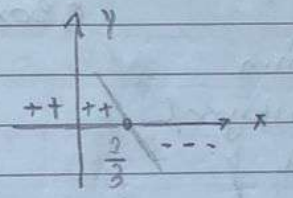
$-6x + 4 = 0 \cdot 3$

$-6x + 4 = 0$

$-6x = -4 \quad (-1)$

$6x = 4$

$x = \frac{4:2}{6:2} = \frac{2}{3}$



$S = \begin{cases} y < 0, \text{ se } x > \frac{2}{3} \\ y = 0, \text{ se } x = \frac{2}{3} \\ y > 0, \text{ se } x < \frac{2}{3} \end{cases}$

6-) Custo Produção Uni. = 0,50

CT(x) = Valor fixo + Não fixo

CT(x) = b + ax

CT(x) = 400 + 0,50 x

Valor Unitário = 0,85

Lucro > Custo total

$0,85 > 0,50x + 400$

$0,85 - 0,50x > 400$

$0,35x > 400$

$x > \frac{400}{0,35}$

$x > 1143$ peças

Objetivo formula do lucro e não do custo

7-)

custo F = 1200 | cada boné | $f(x) = 3x - 1200$

custo v = 2,00 = e produzido a = $f(1000) = 3 \cdot 1000 - 1200$

comerci = 1000 | 2,00 Reais | $f(1000) = 1800$ lucro

Preço uni = 5,00 | e vendido a 5 reais

$C(x) = 2x + 1200$ = Lucro = 5 - 2 = 3

Dúvida

Ponta Preta

10-) I II

a-) $-4 < 4-2x \leq 3$

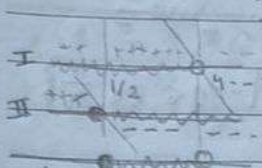
I: $-4 < 4-2x$ | II: $4-2x \leq 3$

$-8 < -2x$.(-1) | $-2x \leq -1$.(-1)

$8 > 2x$ | $2x \geq 1$

$\frac{8}{2} > x$ | $x \geq \frac{1}{2}$

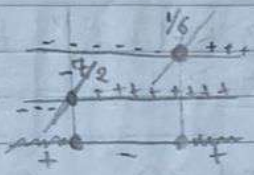
$x < 4$



$S = \{x \in \mathbb{R} \mid 1/2 \leq x < 4\}$

b-) $(6x-1)(2x+7) \geq 0$

f G



f) $6x-1 \geq 0$ | G) $2x+7 \leq 0$

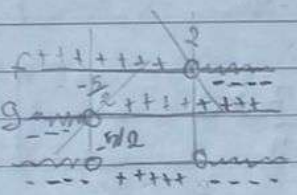
$6x \geq 1$ | $2x \leq -7$

$x \geq \frac{1}{6}$ | $x \leq -\frac{7}{2}$

$S = \{x \in \mathbb{R} \mid x \leq -\frac{7}{2}$ ou $x \geq \frac{1}{6}\}$

c-) $(4-2x)(5+2x) < 0$

f G



f-) $4-2x < 0$ | G) $5+2x < 0$

$-2x < -4$.(-1) | $2x < -5$

$2x > 4$ | $x < -\frac{5}{2}$

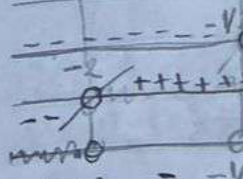
$x > \frac{4}{2}$

$x > 2$

$S = \{x \in \mathbb{R} \mid x < -\frac{5}{2}$ ou $x > 2$

d-) $(2x+1)(x+2) > 0$

f G



f) $2x+1 > 0$ | G) $x+2 > 0$

$2x > -1$ | $x > -2$

$x > -\frac{1}{2}$

$S = \{x \in \mathbb{R} \mid x < -2$ ou $x > -\frac{1}{2}\}$

h-) $\frac{x-1}{x+1} \geq 3$

$\frac{x-1}{x+1} - 3 \geq 0$

$\frac{x-1-3x-3}{x+1} \geq 0$

$\frac{-2x-4}{x+1} \geq 0$

f) $-2x-4 \geq 0$

$-2x \geq 4 \cdot (-1)$

$2x \leq -4$

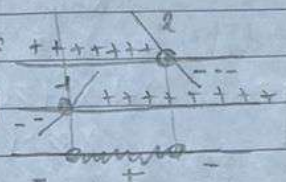
$x \leq -\frac{4}{2}$

$\boxed{x \leq 2}$

G) $x+1 \geq 0$

$\boxed{x \geq -1}$

$S = \{x \in \mathbb{R} \mid -1 \leq x \leq 2\}$



i-) $\frac{1}{x-4} < \frac{2}{x+3}$

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

$\frac{x+3-2x+8}{(x-4)(x+3)} < 0$

$\frac{-x+11}{(x-4)(x+3)} < 0$

f) $-x+11 < 0$

$-x < -11 \cdot (-1)$

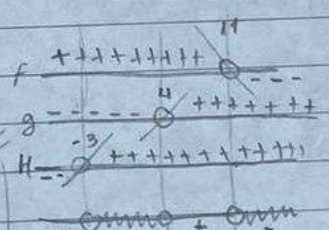
$\boxed{x > 11}$

G) $x-4 < 0$

$\boxed{x < 4}$

h-) $x+3 < 0$

$\boxed{x < -3}$



$S = \{x \in \mathbb{R} \mid -3 < x < 4 \text{ ou } x > 11\}$

j-) $\frac{2}{3x-1} \geq \frac{1}{(x-1)} - \frac{1}{(x+1)} \Rightarrow \frac{2}{3x-1} - \frac{1}{x-1} + \frac{1}{x+1} \geq 0$

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

/ /

Com 30% em relação a 5,00 = 1,50

$F(x) = 1,5x - 1200$

$1800 = 1,5x - 1200$

$1,5x = 3000$

$x = \frac{3000}{1,5} = 2000$ unidades

| ouve um aumento de 100% das vendas

8-)

$x \longrightarrow f(x) = 0,50x + 35$

$y \longrightarrow f(x) = 0,65x + 26$

a partir de quantos min x possa ser mais vantajoso/ barato em relação a y

$x < y$

$0,50x + 35 < 0,65x + 26$

$0,50x - 0,65x < 26 - 35$

$-0,15x < -9 \quad .(-1)$

$0,15x > 9$

$x > \frac{9}{15}$

$x > 60$ segundos

9-)

a-) $2° \longrightarrow 1000$ pes

$20° \longrightarrow x$

$20.1000 = 2x \quad (:2)$

$20000 = 2x$

$\frac{20000}{2} = x$

$x = 10000$

b-) $2° \longrightarrow 1000$ pes

$y \longrightarrow 35.000$ pes

$1000y = 35.000 . 2$

$1000y = 70.000$

$y = \frac{70000}{1000}$

$y = 70$

Ponto Inicial 20

" " Final -70

-50°

Paula Tranca

$(2x^2-2)+(3x^2-2x+1)+(3x^2-4x+1) \geq 0$

$(3x-1)(x-1)(x+1)$

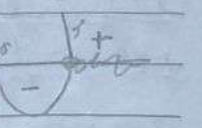
I II III IV

$\frac{2x^2-6x}{(3x-1)(x-1)(x+1)} \geq 0$

I) $2x^2-6x$

$\Delta = -36$

$x_1 = 3, \quad x_2 = 0$



II) $3x-1 \geq 0$

$3x \geq 1$

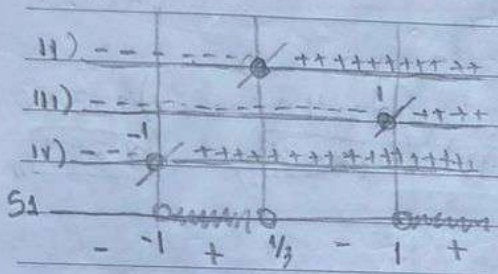
$x \geq \frac{1}{3}$

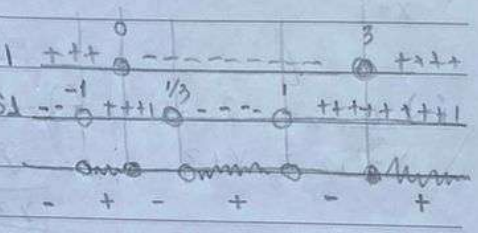
III) $x-1 \geq 0$

$x \geq 1$

IV) $x+1 \geq 0$

$x \geq -1$





$S = \{x \in \mathbb{R} \mid -1 \leq x \leq 0 \text{ ou } 1/3 \leq x \leq 1 \text{ ou } x \geq 3\}$

K-) $\frac{1-2x}{(5-x)(3-x)} \leq 0$

1º faça com os denominadores

I) $1-2x \leq 0$

$-2x \leq -1 \cdot (-1)$

$2x \geq 1$

$x \geq \frac{1}{2}$

II) $5-x \leq 0$

$-x \leq -5 \cdot (-1)$

$\boxed{x \geq 5}$

$x > 5$

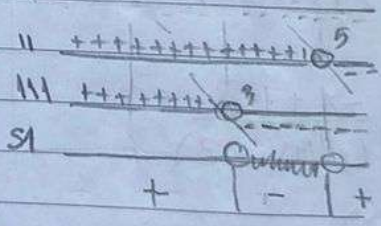
III) $3-x \leq 0$

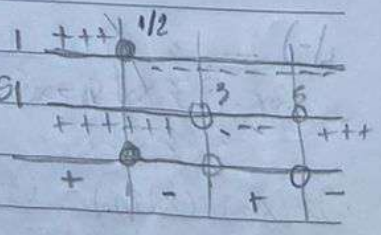
$-x \leq -3 \cdot (-1)$

$\boxed{x \geq 3}$

$x > 3$

Pois são denomi.. e não podem ser zero





$S = \{1/2 \leq x < 3 \text{ ou } x > 5\}$