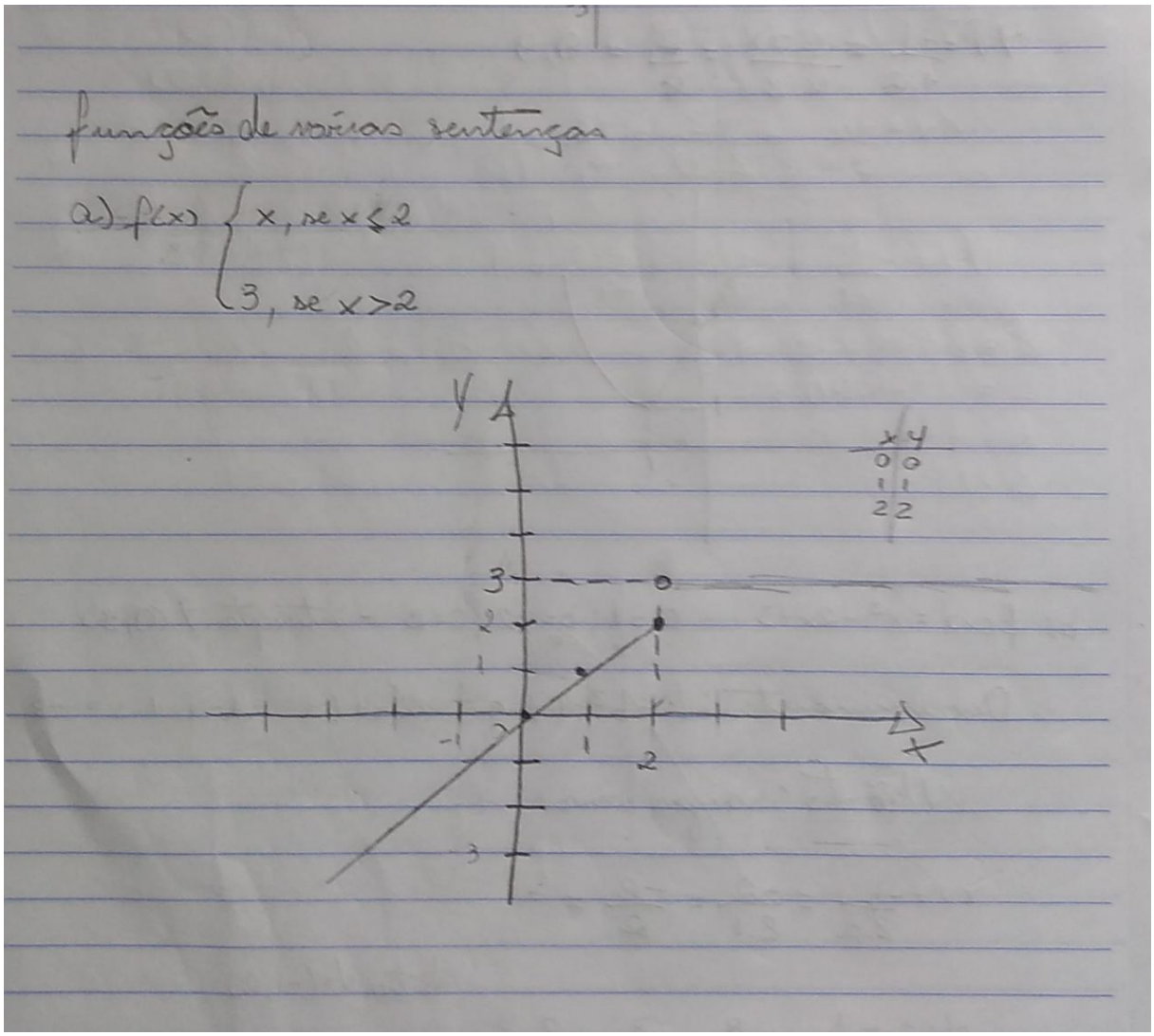
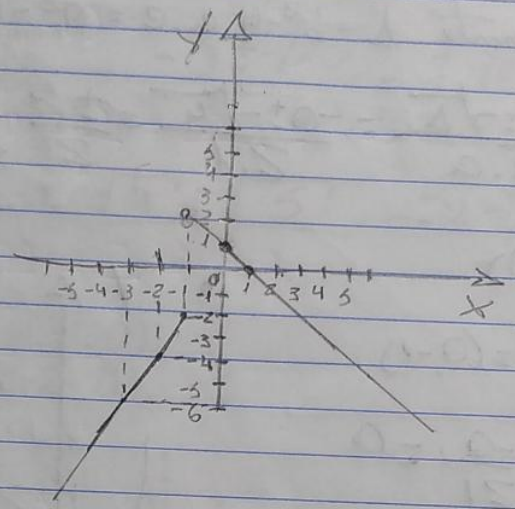
Tarefa Matemática 1

Funções de várias sentenças

Lucas Barbosa Brancalhão



b) $f(x) = \begin{cases} 2x, & \text{se } x < -1 \\ -x+1, & \text{se } x \geq -1 \end{cases}$



x	y
-1	-2
-2	-4

x	y
0	1
1	0

c) $f(x) = x^2 - 1$, $a = 1$, $b = 0$, $c = -1$

Interceptação $(0, c) = (0, -1)$

Discriminante $\Delta = b^2 - 4.a.c = 0^2 - 4.1.(-1) = +4$

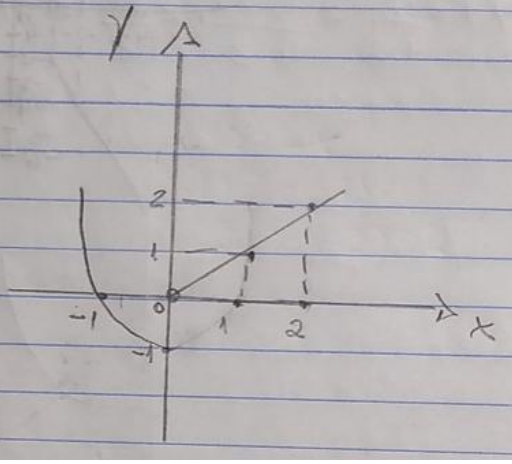
Raízes $x = \frac{-b \pm \sqrt{\Delta}}{2.a} = \frac{-0 \pm \sqrt{4}}{2.1} = \frac{\pm 2}{2}$ / $x_1 = 1$ $x_2 = -1$

$(-1, 0)$ $(1, 0)$

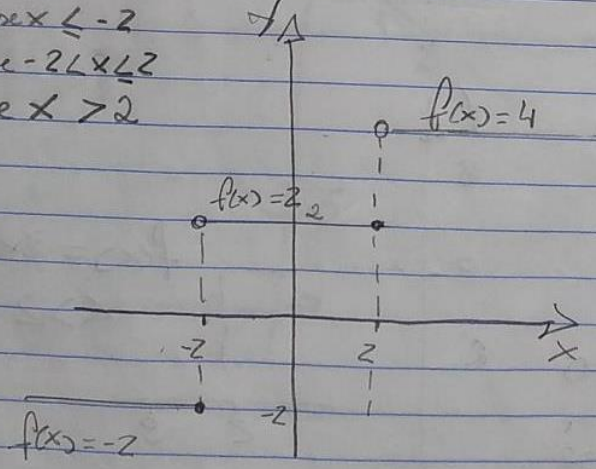
$V = (x_v, y_v) = (0, -1)$

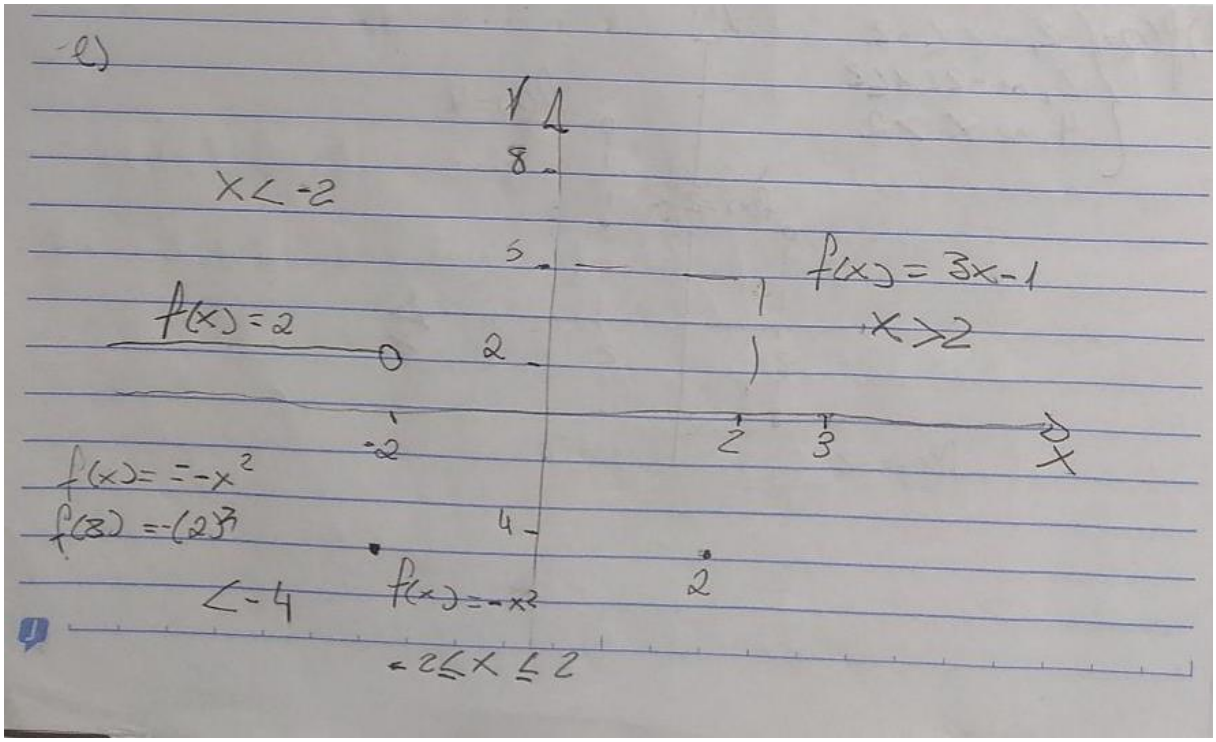
$x_v = \frac{-b}{2a} = \frac{-0}{2.1} = 0$

$y_v = \frac{-\Delta}{4a} = \frac{-4}{4.1} = -1$



d) $f(x) = \begin{cases} -2, \text{se } x \leq -2 \\ 2, \text{se } -2 < x \leq 2 \\ 4, \text{se } x > 2 \end{cases}$




c)
8
5
2
-2
2
3
x
x < -2
f(x) = 2
f(x) = 3x - 1
x ≥ 2
f(x) = -x²
f(2) = -(2)²
< -4
f(x) = -x²
2
-2 ≤ x ≤ 2

b) $f(x) = x^2 - 5 \quad a=1, b=0, c=-5$

$(0,c) = (0,-5)$

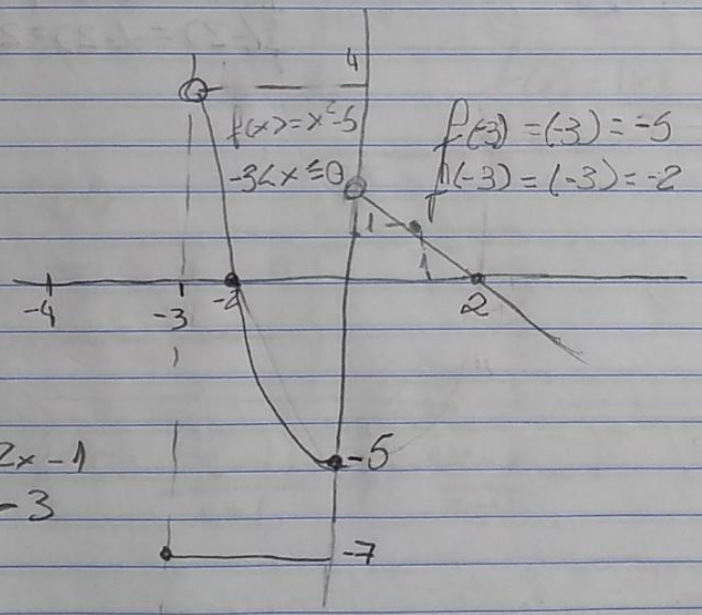
$\Delta = b^2 - 4 \cdot a \cdot c = 0^2 - 4 \cdot 1 \cdot (-5) \quad 20 = 0 \quad \Delta = 20$

$$\frac{x = b \pm \sqrt{\Delta}}{2 \cdot a} = \frac{-0 \pm \sqrt{20}}{2} = \pm\sqrt{20}$$

$$x = \frac{\pm\sqrt{45}}{2} = \frac{\pm\sqrt{4} \cdot \sqrt{5}}{2} = \frac{\pm 2\sqrt{5}}{2} = \sqrt{5}$$

$(-\sqrt{5}, 0), (\sqrt{5}, 0)$

$(-2.2, 0), (2.2, 0)$



-3	-7	(-3, -7)
-4	-9	(-4, -9)

0	2	(0, 2)
1	1	(1, 1)

$f(x) = 2x - 1$

$x < -3$