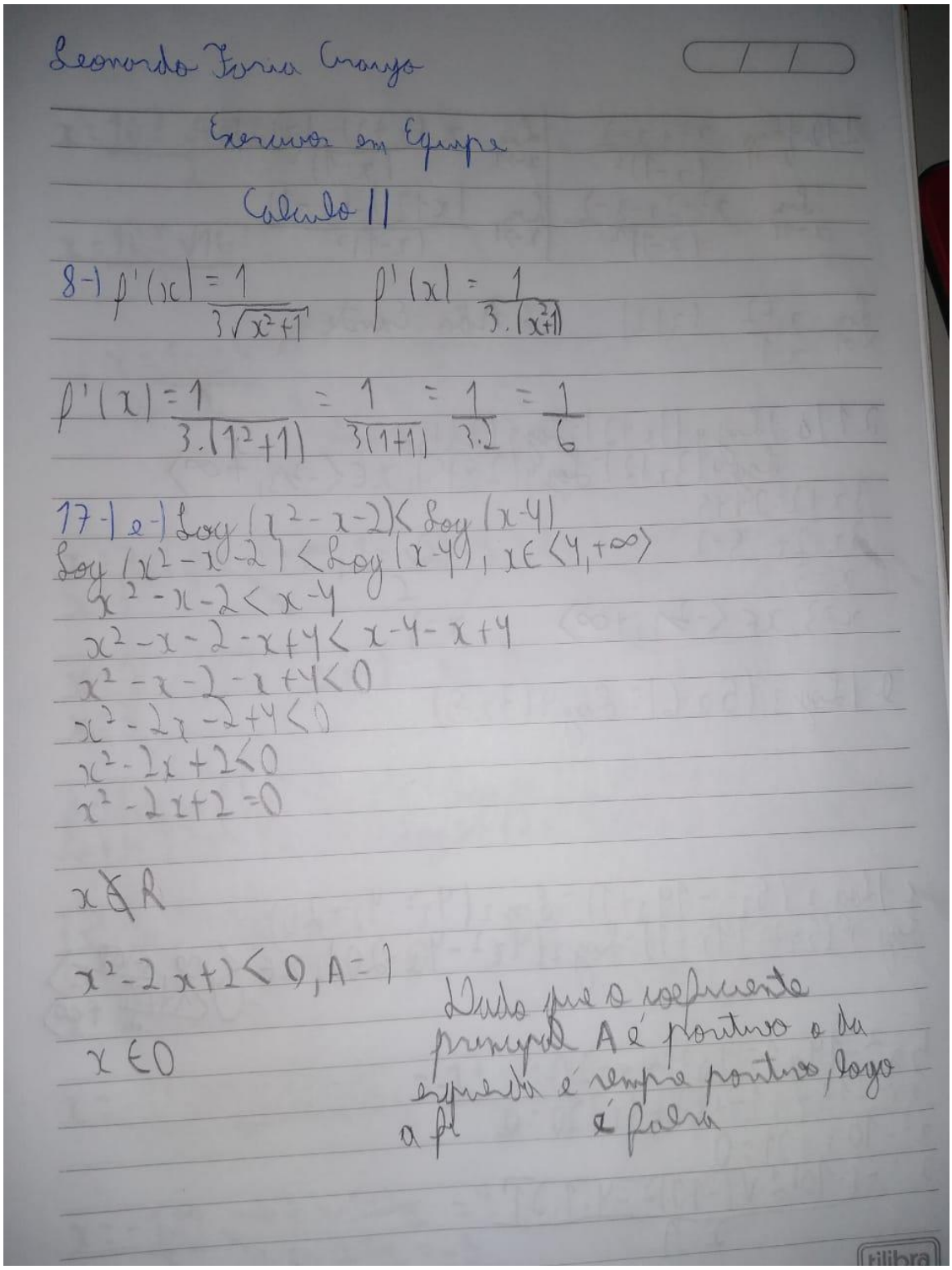
Leonardo Faria Araujo

Calculo II



2-) b-) $\lim_{x \to 1} \frac{x^2+x-2}{(x-1)^2}$ | $\lim_{x \to 1} \frac{x \cdot (x+2) - |x+2|}{(x-1)^2}$

$\lim_{x \to 1} \frac{x^2+2x-x-2}{(x-1)^2}$ | $\lim_{x \to 1} \frac{(x+2) \cdot (x-1)}{(x-1)^2}$

$\lim_{x \to 1} \frac{x+2}{x-1} \cdot |x+2|$ Não Existe

2-) a-) $\log_4(3x+2) = \log_4(2x+5)$

$\log_4(3x+2) = \log_4(2x+5)$, $x \in \langle -2/3, +\infty \rangle$

$3x+2 = 2x+5$

$3x-2x = 5-2$

$x = 3$

$x = 3$, $x \in \langle -2/3, +\infty \rangle$ $x = 3$

d-) $\log_3(5x-6) = \log_4(3x-5)$

c-) $\log_2(5x^2-14x+1) = \log_2(4x^2-4x-20)$

$\log_2(5x^2-14x+1) = \log_2(4x^2-4x-20)$, $x \in \left\langle -\infty, \frac{1-\sqrt{21}}{2} \right\rangle \cup \left\langle \frac{1+\sqrt{21}}{2}, +\infty \right\rangle$

$5x^2-14+1 = 4x^2-4x-20$

$5x^2-14x+1-4x^2+4x+20 = 0$

$x^2-10x+21 = 0$

$x = \frac{-(-10) \pm \sqrt{(-10)^2-4 \cdot 1 \cdot 21}}{2 \cdot 1}$

$x = \frac{10 \pm \sqrt{100-84}}{2}$

$x = \frac{10 \pm \sqrt{16}}{2}$

$x = \frac{10 \pm 4}{2}$ → $x = \frac{10+4}{2} = 7$

→ $x = \frac{10-4}{2} = 3$

$x = 7$, $x \in \left\langle -\infty, \frac{1-\sqrt{21}}{2} \right\rangle \cup \left\langle \frac{1+\sqrt{21}}{2}, \infty \right\rangle$
$x = 3$

$x = 7$ $\quad x_1 = 3, \; x_2 = 7$
$x = 3$

1) $\log_{\frac{1}{3}}(3x^2 - 4x - 17) = \log_{\frac{1}{3}}(2x^2 - 5x + 3)$, $x \in \left\langle -\infty, \frac{2-\sqrt{55}}{3} \right\rangle \cup \left\langle \frac{2+\sqrt{55}}{3}, +\infty \right\rangle$
$\log_{\frac{1}{3}}(3x^2 - 4x - 17) = \log_{\frac{1}{3}}(2x^2 - 5x + 3)$

$3x^2 - 4x - 17 = 2x^2 - 5x + 3$
$3x^2 - 4x - 17 - 2x^2 + 5x - 3 = 0$
$x^2 + x - 20 = 0$

$x = \frac{-1 \pm \sqrt{1^2 - 4 \cdot 1 \cdot (-20)}}{2 \cdot 1} = \frac{-1 \pm \sqrt{1+80}}{2} = \frac{-1 \pm \sqrt{81}}{2}$

$x = \frac{-1 \pm 9}{2}$ → $x = \frac{-1+9}{2} = 4$
↘ $x = \frac{-1-9}{2} = -5$

$x=4, x=-5, x \in \left\langle -\infty, \frac{2-\sqrt{55}}{3} \right\rangle \cup \left\langle \frac{2+\sqrt{55}}{3}, +\infty \right\rangle$

$x=4$
$x=-5$ $\quad x_1=-5, x_2=4$

0 $\log_4(4x^2+13x+2) = \log_4(2x+5)$
$\log(4x^2+13x+2) = \log_4(2x+5), x \in \left\langle \frac{-13+\sqrt{177}}{8}, +\infty \right\rangle$

$4x^2+13x+2 = 2x+5$
$4x^2+13x+2-2x-5=0$
$4x^2+11x-3=0$

$x = \frac{-11 \pm \sqrt{11^2-4\cdot 4\cdot(-3)}}{2\cdot 4}$ $\quad x = \frac{-11 \pm \sqrt{121+48}}{8} = \frac{-11 \pm \sqrt{169}}{8} = \frac{-11 \pm 13}{8}$

$x = \frac{-11 \pm 13}{8} \rightarrow x = \frac{-11+13}{8} = \frac{1}{4}$
$\rightarrow x = \frac{-11-13}{8} = -3$

$x = \frac{1}{4}, x \in \left\langle \frac{13+\sqrt{177}}{8}, +\infty \right\rangle$
$x=-3$

$x = \frac{1}{4}$ $\quad x = 0{,}25, x = 2^{-2}$