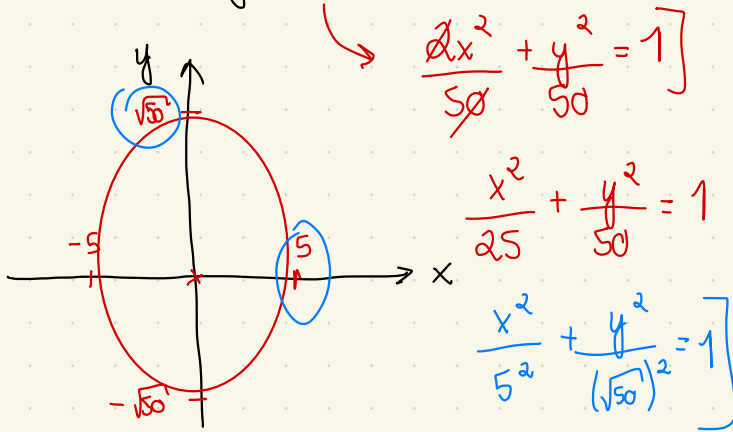


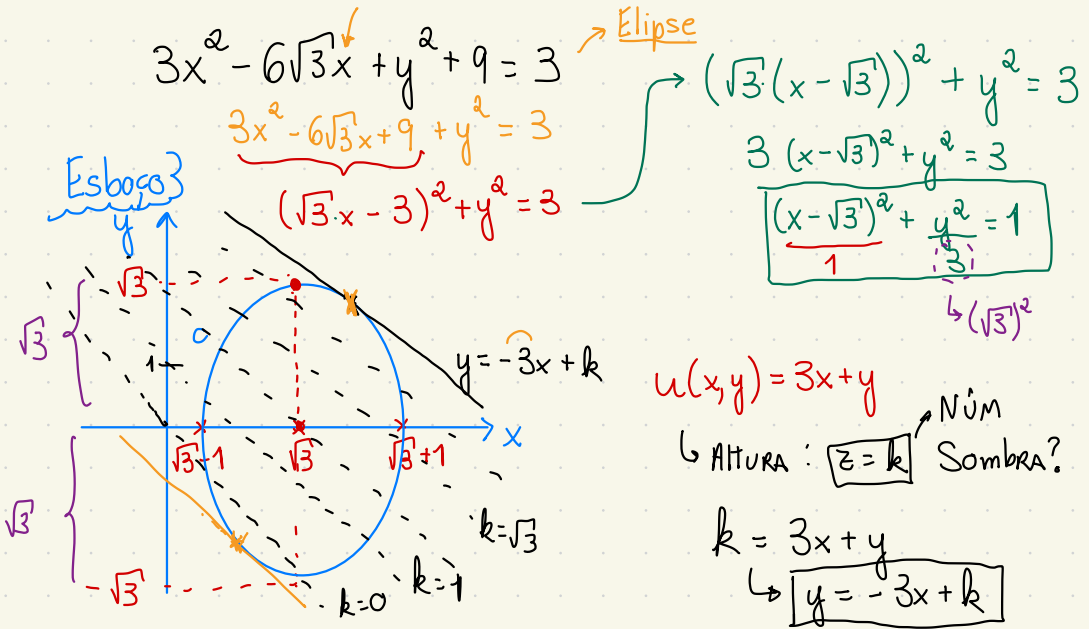
MONITORIA 02/10

(4) $2x^2 + y^2 = 50 \rightarrow$ Esboço (elipse)



Problema 2.5. Sejam $C = \{(x, y) \in \mathbb{R}^2 \mid 3x^2 - 6\sqrt{3}x + y^2 + 9 = 3\}$ e $u : \mathbb{R}^2 \rightarrow \mathbb{R}$ função definida como $u(x, y) = 3x + y$. Encontre $p \in C$ tal que $u(p)$ assumam **maior** valor em C .

2.6) menor



$$k=0: y = -3x$$

$$k=1: y = -3x + 1$$

ACHAR A RETA TANGENTE à elipse

↳ DERIVAR A elipse

Ponto da elipse cuja derivada é -3 ?

↳ INCLINAÇÃO DA
RETA

$$3x^2 - 6\sqrt{3}x + y^2 + 9 = 3$$

↳ Derivada Implícita (derivar y em relação a x)
(regra da cadeia)

$$6x - 6\sqrt{3} + 2y \cdot y' = 0$$

$$(y' = -3)$$

$$6x - 6\sqrt{3} - 6y = 0$$

$$x - \sqrt{3} - y = 0$$

$$y = x - \sqrt{3}$$

$$(x - \sqrt{3})^2 + \frac{y^2}{3} = 1$$

$$y^2 + \frac{y^2}{3} = 1$$

$$\frac{4y^2}{3} = 1$$

$$y^2 = \frac{3}{4}$$

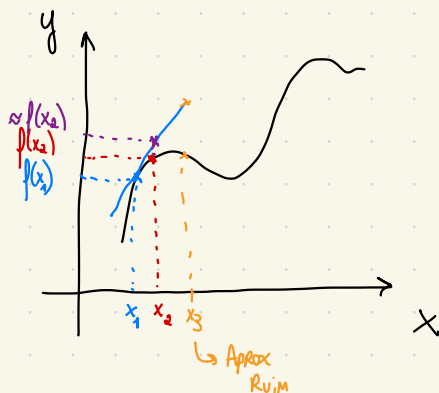
$$y = \pm \frac{\sqrt{3}}{2}$$

$$\text{Máx. } y = \frac{\sqrt{3}}{2} : x = \frac{\sqrt{3}}{2} + \sqrt{3} = \frac{3\sqrt{3}}{2} \quad \left(\frac{3\sqrt{3}}{2}, \frac{\sqrt{3}}{2} \right)$$

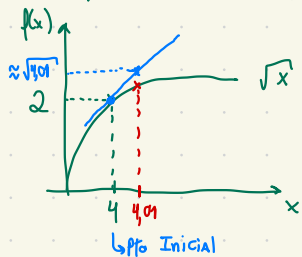
$$\text{Mín. } y = -\frac{\sqrt{3}}{2} : x = -\frac{\sqrt{3}}{2} + \sqrt{3} = \frac{\sqrt{3}}{2} \quad \left(\frac{\sqrt{3}}{2}, -\frac{\sqrt{3}}{2} \right)$$

Lista 3: Derivadas | O que significa a derivada?

Cálculo I



Ex | Aproximar $\sqrt{4,01}$



$$f(x) = \sqrt{x}$$

$$f'(x) = \frac{1}{2\sqrt{x}}$$

$$f'(4) = \frac{1}{2\sqrt{4}} = \frac{1}{2 \cdot 2} = \frac{1}{4} = 0,25$$

$$a = \frac{\Delta y}{\Delta x}$$

Partindo do $x=4$,

a cada 1 un que eu mudo em x , eu mudo 0,25 un em y .

$$\frac{\Delta y}{\Delta x} \approx 0,25$$

$$\frac{\Delta y}{0,01} \approx 0,25$$

$$\Delta y \approx 0,0025$$

$$\sqrt{4} = 2$$

$$\sqrt{4,01} \approx 2,0025$$