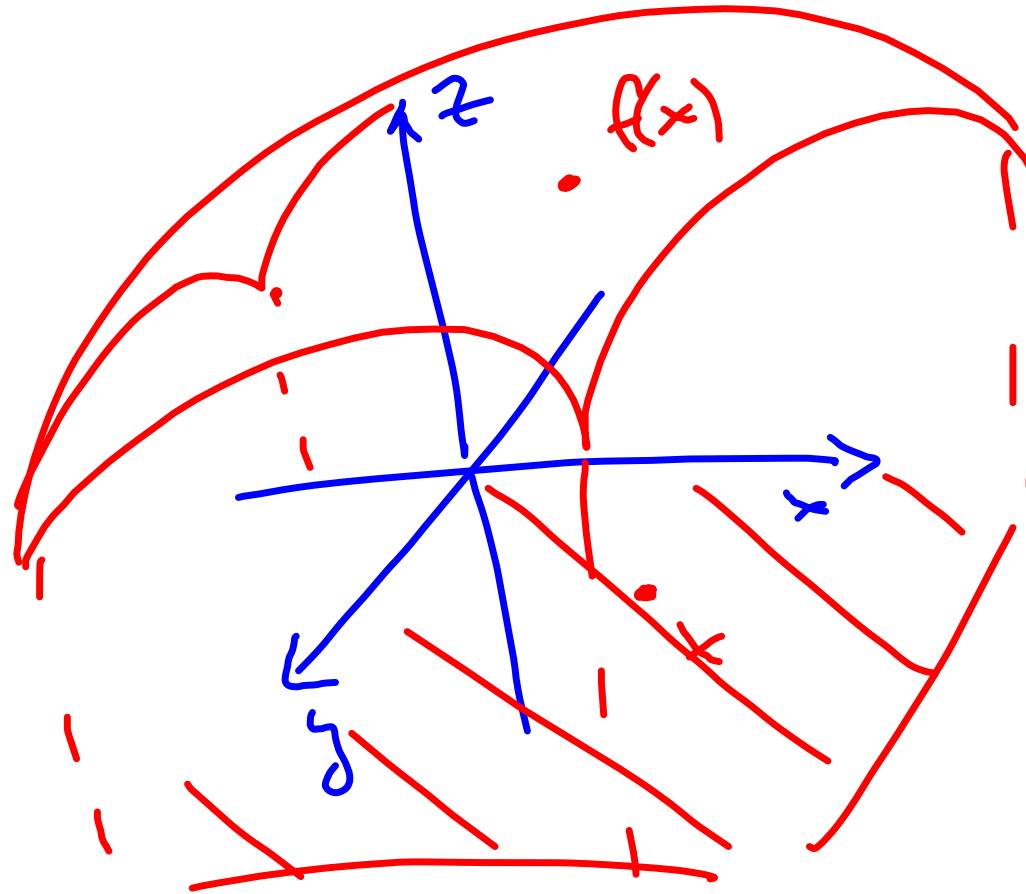
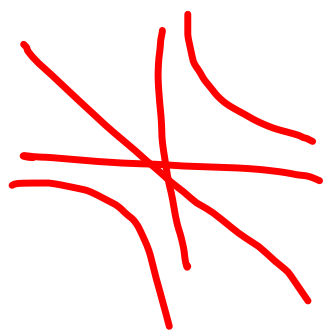
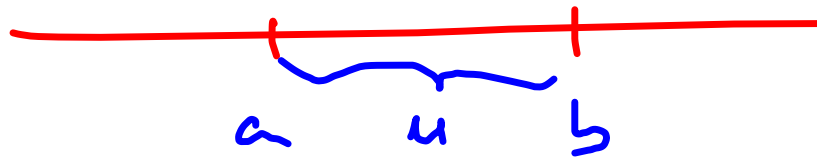
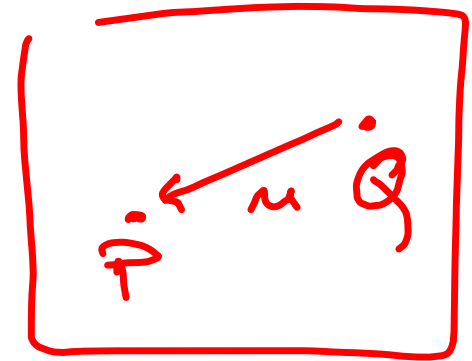


$f: \mathbb{R}^2 \rightarrow \mathbb{R}$

graf  $\rightarrow$

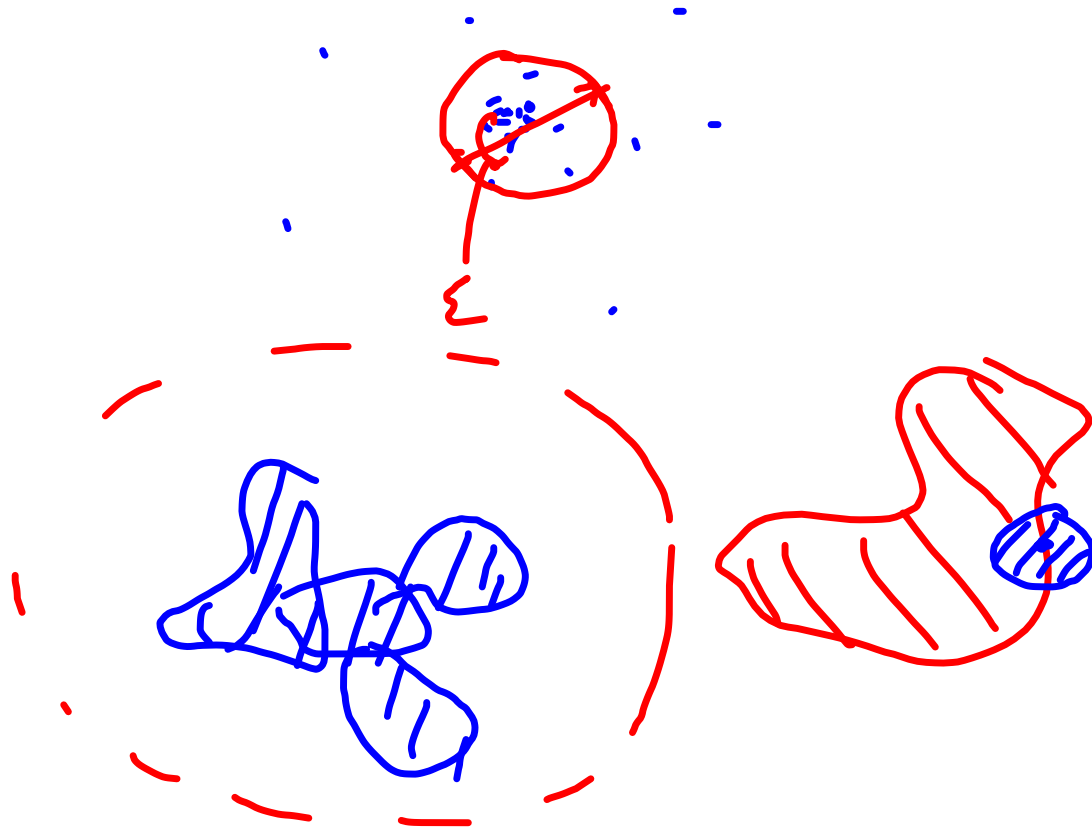
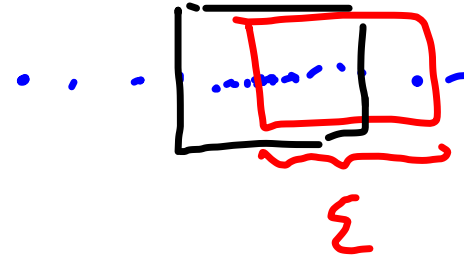


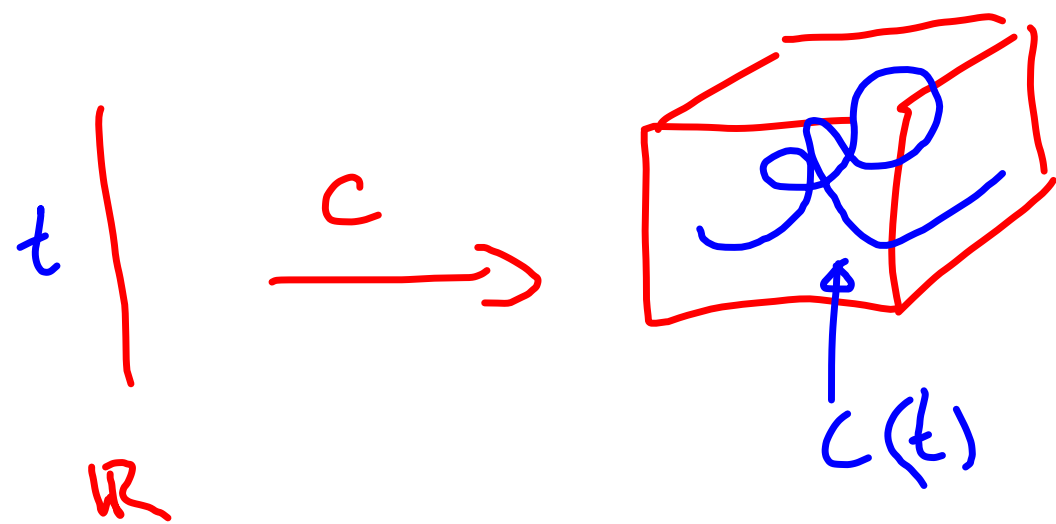
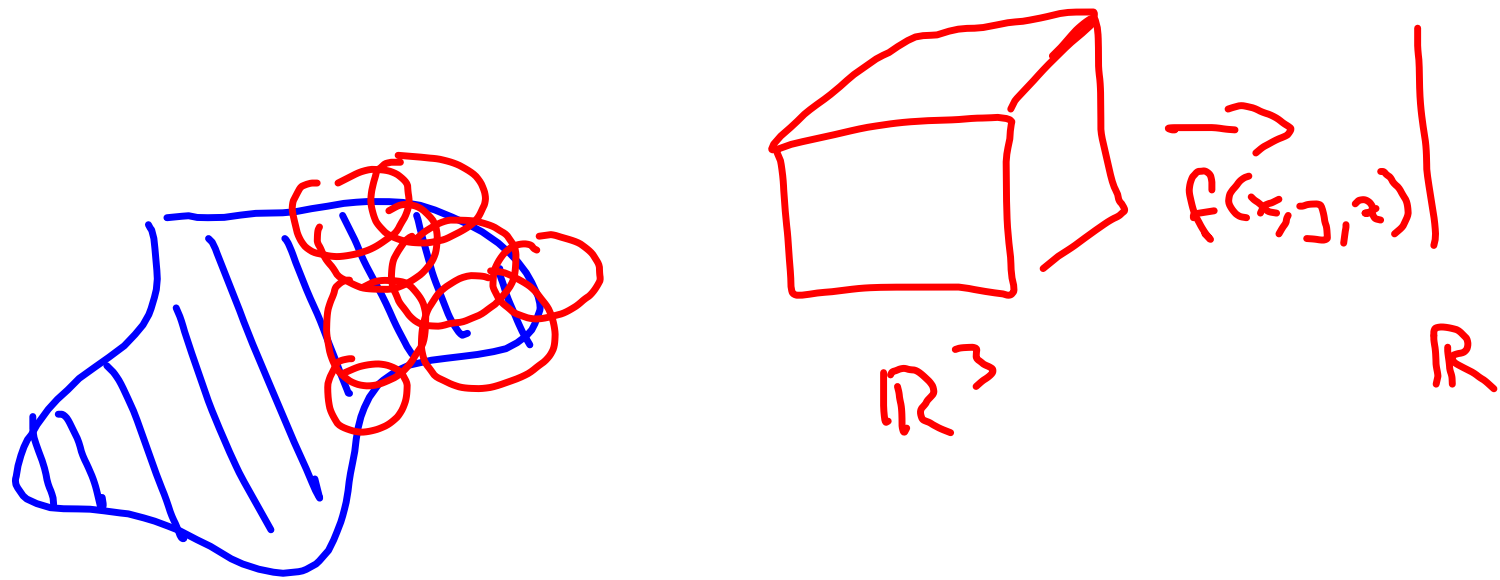
vzdálenost  $\|P - Q\|$



$$|u| = |b - a|$$

topologie:

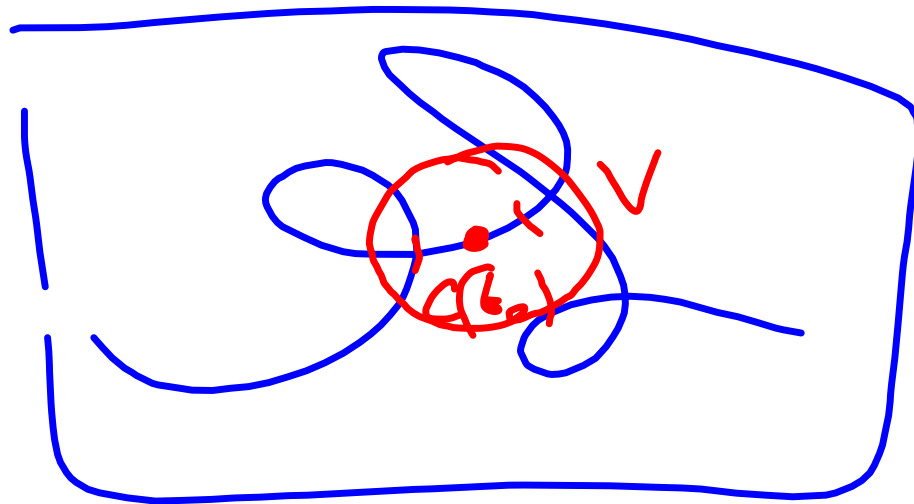
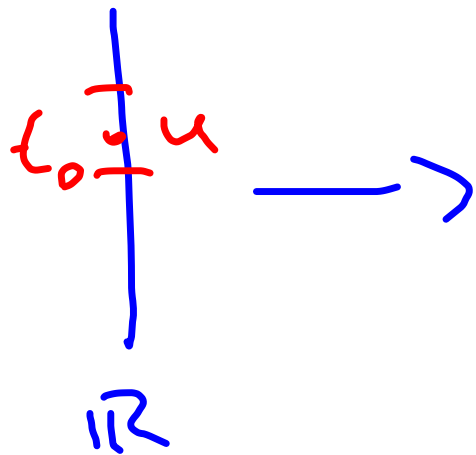


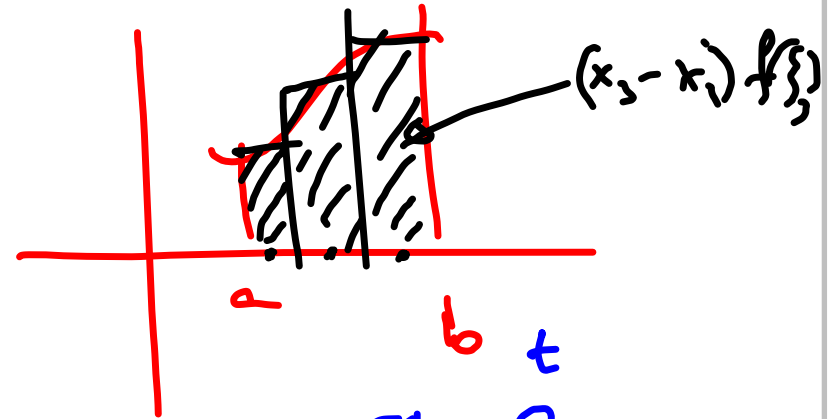
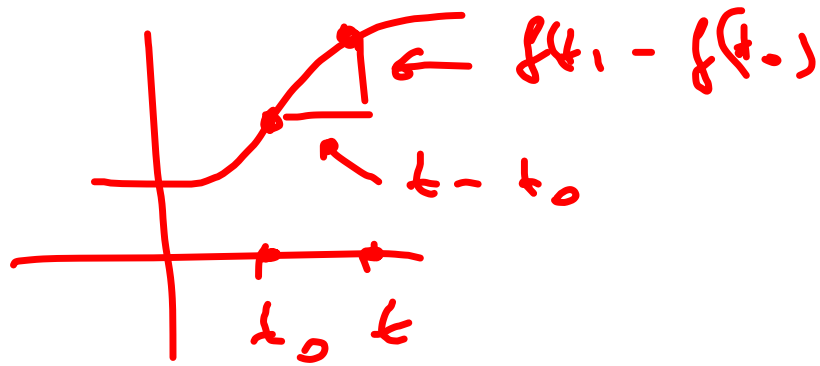


$$\text{kon } c(t) = P \in \mathbb{E}_n$$

$$t \rightarrow t_0$$

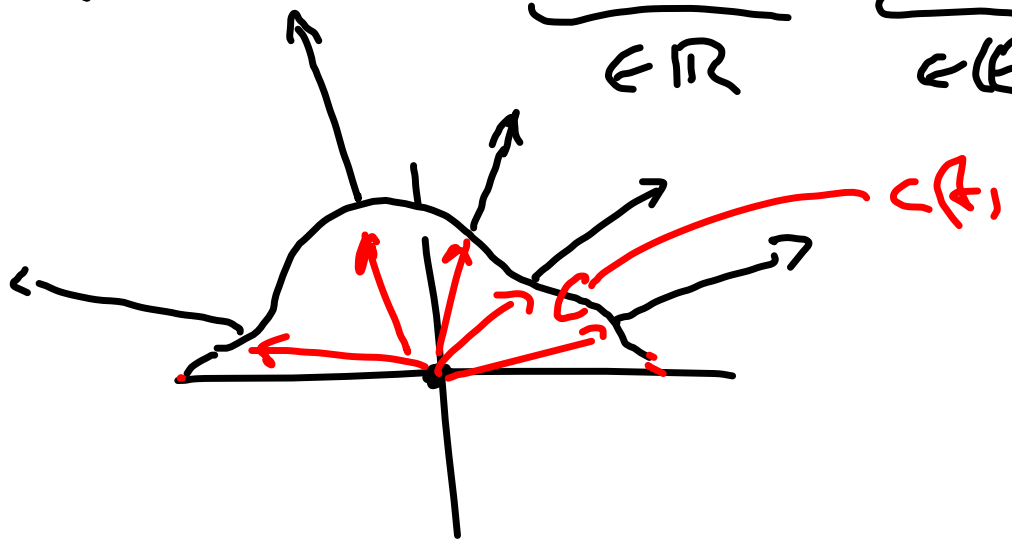
$\forall \delta > 0 \exists \eta > 0 \exists \delta_0, \forall \delta_0$   
 $\exists$  okno do  $V$  ( $c(u) \subset V$ )



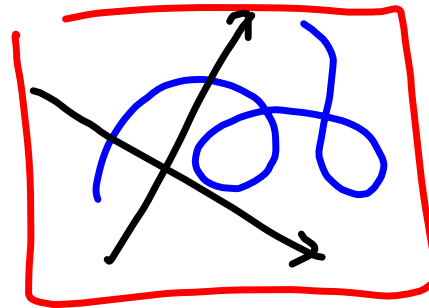


$$f(t_1) = \int_a^{t_1} f(s) ds$$

no body  $\underbrace{(x_3 - x_2)}_{\in \mathbb{R}} \cdot \underbrace{c(x_3)}_{\in E_n} \in E_n$

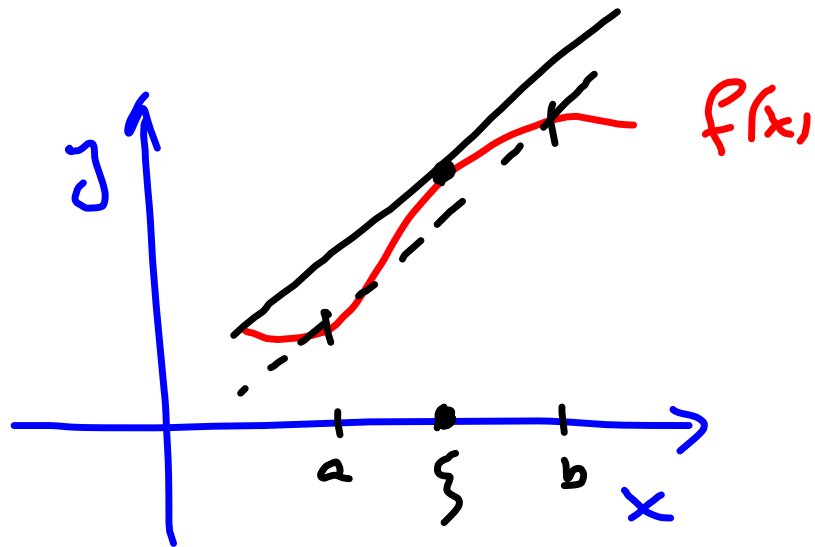


$$\lim_{t \rightarrow t_0} c(t) = \left( \lim_{t \rightarrow t_0} c_1(t), \lim_{t \rightarrow t_0} c_2(t) \right) \quad (E_2)$$



$$c'(t) = (c_1'(t), c_2'(t))$$

$$\int_a^b c(t) dt = \left( \int_a^b c_1(t) dt, \int_a^b c_2(t) dt \right)$$



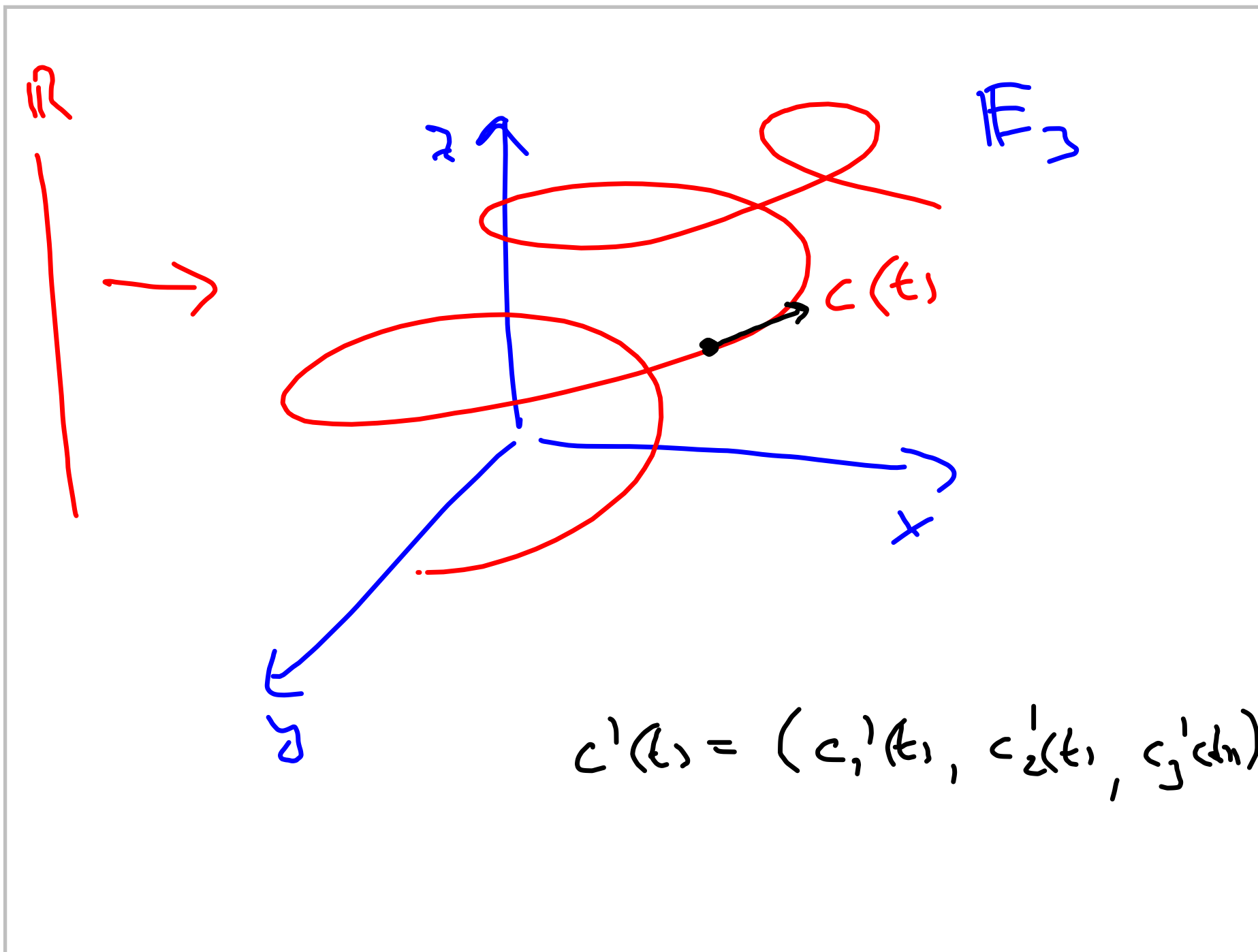
$$y = f(x)$$

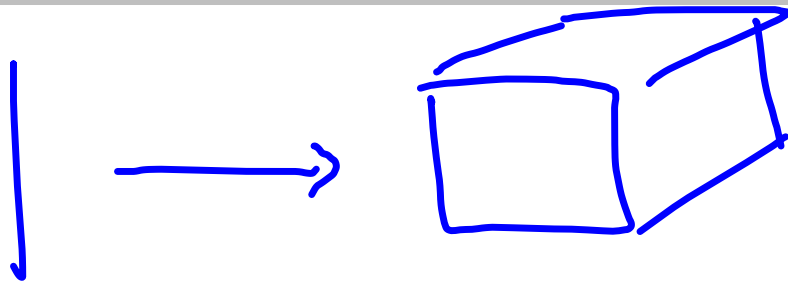
$$f(b) - f(a) = f'(\xi)(b-a)$$

$$\|c(t) - c(s)\|^2 = \sum_{i=1}^n |c_i(t) - c_i(s)|^2 \leq$$

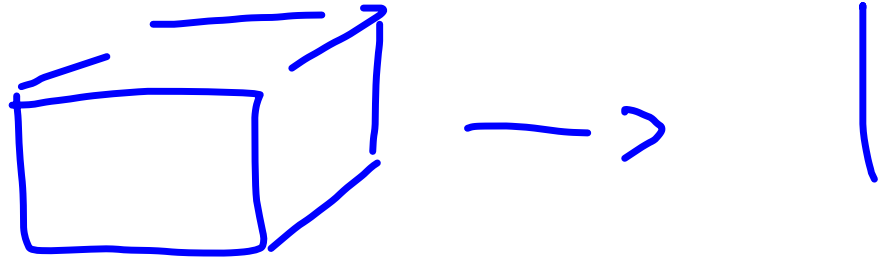
$$\left( \sum_{i=1}^n c_i'(\xi_i) \right) |t-s|^2 \leq n \max \|c'\|^2 |t-s|^2$$





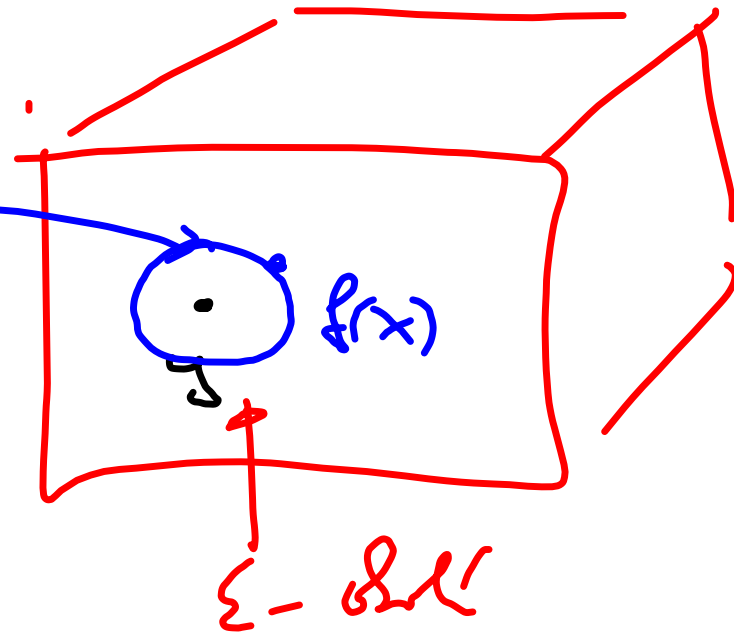
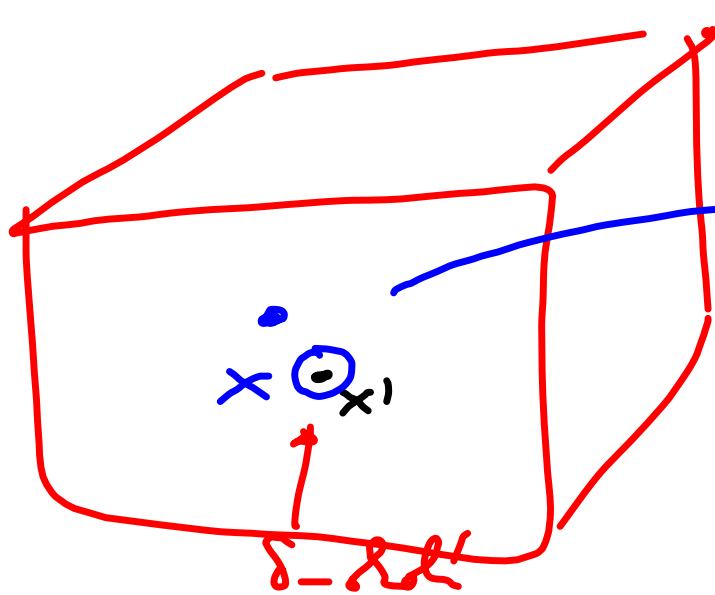


$$\mathbb{R} \rightarrow \mathbb{R}^n$$

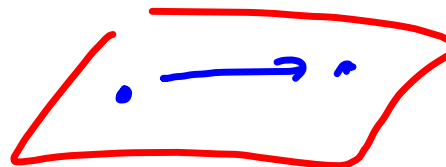
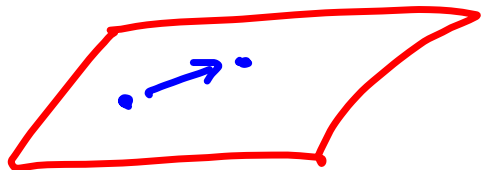
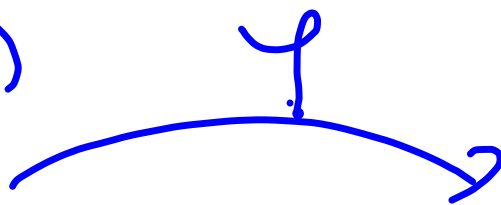


$$\mathbb{R}^n \rightarrow \mathbb{R}$$

$$f: \mathbb{R}^m \rightarrow \mathbb{R}^n$$

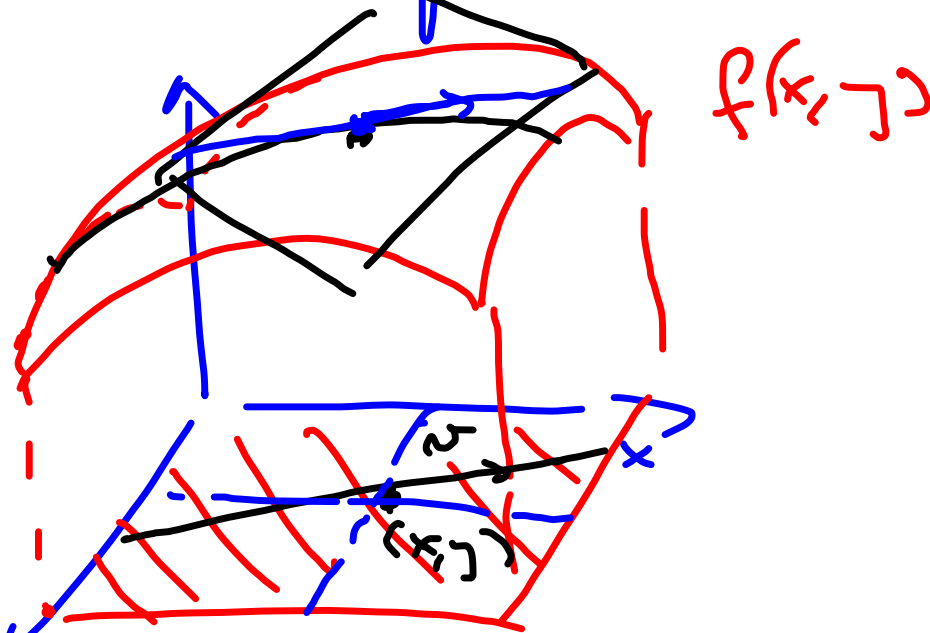


$$x = (x_1, \dots, x_n)$$



derivování = lineární přiblížení

$$f: \mathbb{R}^n \rightarrow \mathbb{R}$$



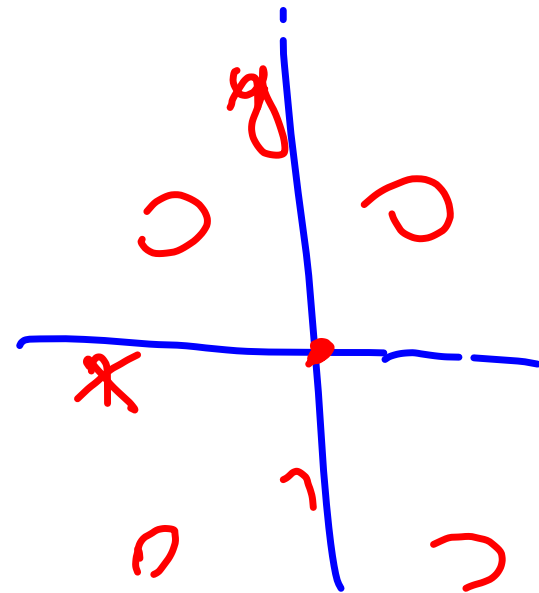
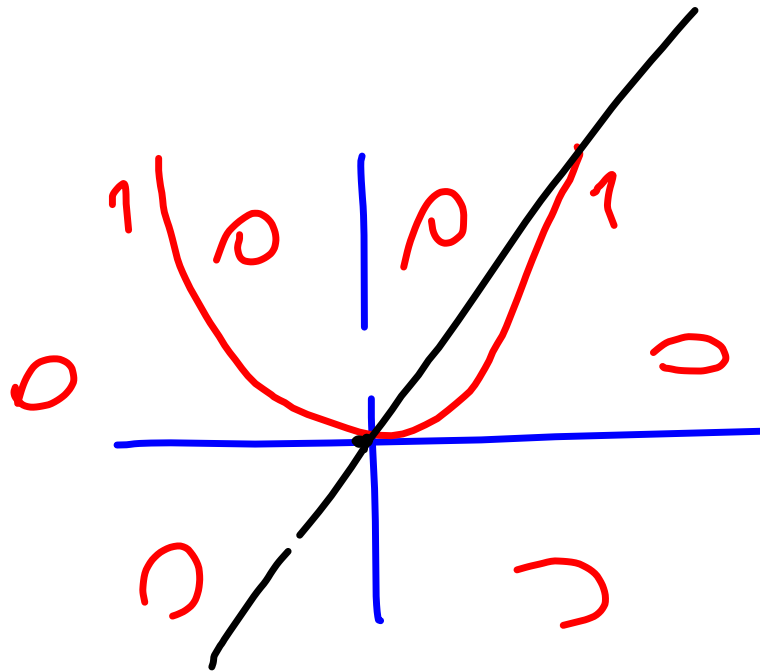
$$f(x, y) = x^3 y^4 + 2x$$

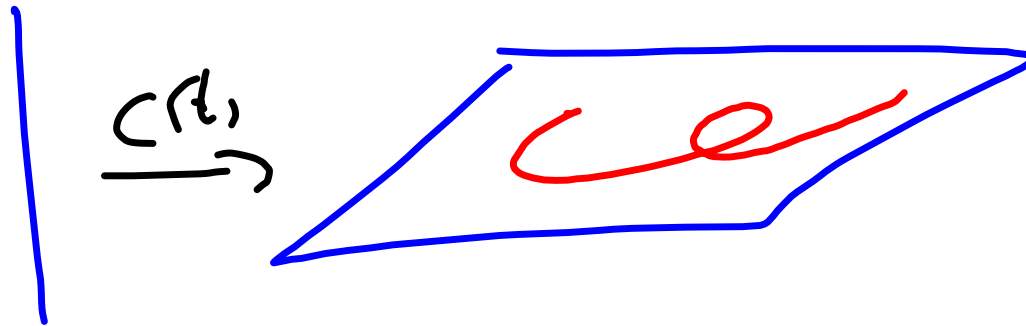
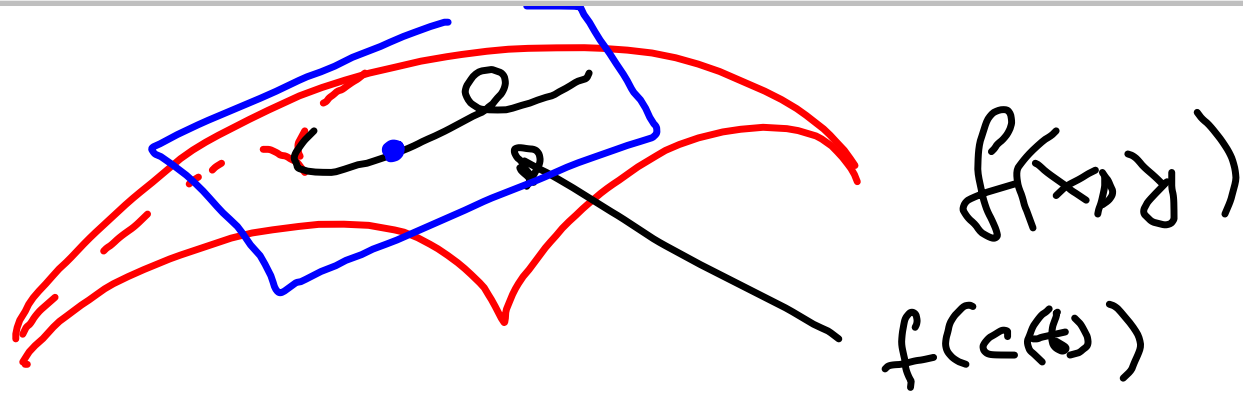
$$\frac{\partial f}{\partial x} = 3x^2 y^4 + 2$$

$$\frac{\partial f}{\partial y} = 4x^3 y^3$$

$$v = (v_1, v_2)$$

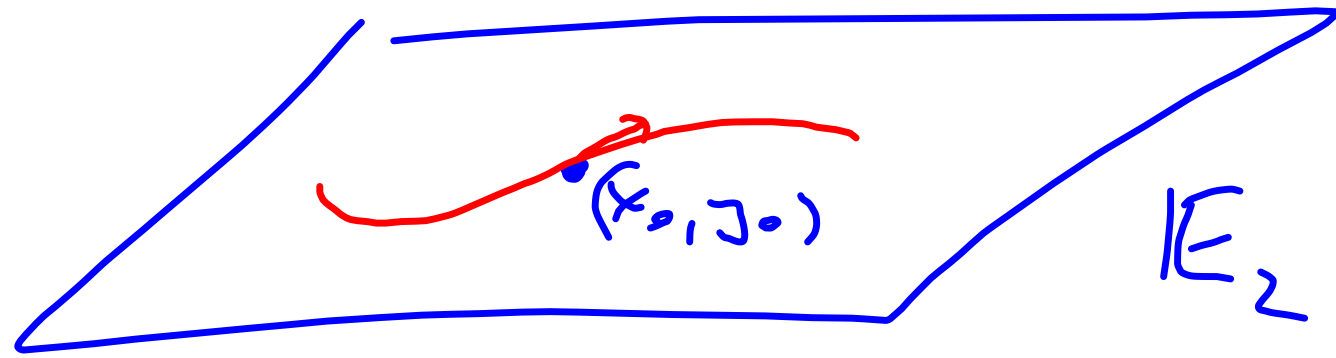
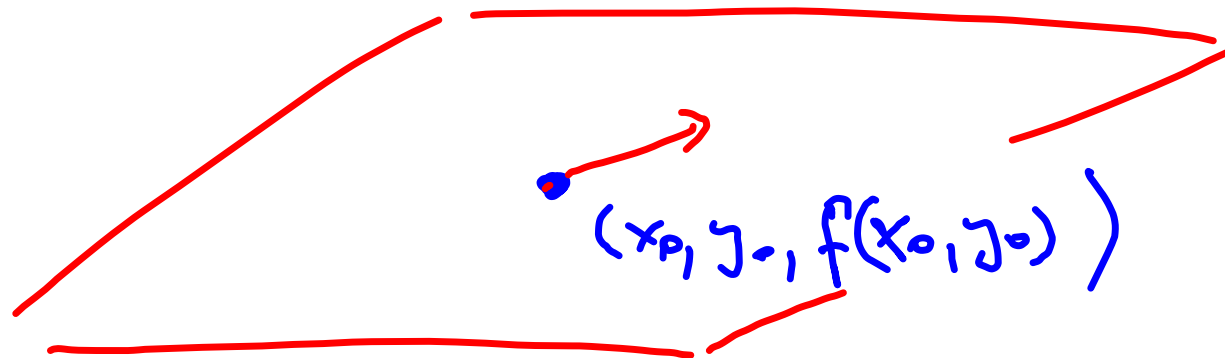
$$d_v f(x, y) = v_1 \frac{\partial f}{\partial x}(x, y) + v_2 \frac{\partial f}{\partial y}(x, y)$$





$$\frac{d(f \circ c)}{dt} = \frac{\partial f}{\partial x} \cdot \frac{dx}{dt} + \frac{\partial f}{\partial y} \cdot \frac{dy}{dt}$$

$$= c_1'(t) \quad c_2'(t)$$



$$\frac{\partial f}{\partial x} = + \cos(x) \cos(y)$$

$$\frac{\partial f}{\partial y} = - \cos(x) \sin(y)$$

