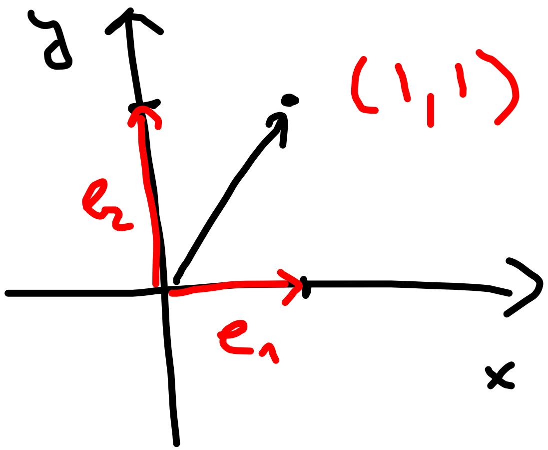


$$f : V \to \mathbb{R}$$

$$f_i = f(e_i)$$

$$f(x_1 e_1 + \dots + x_n e_n) =$$

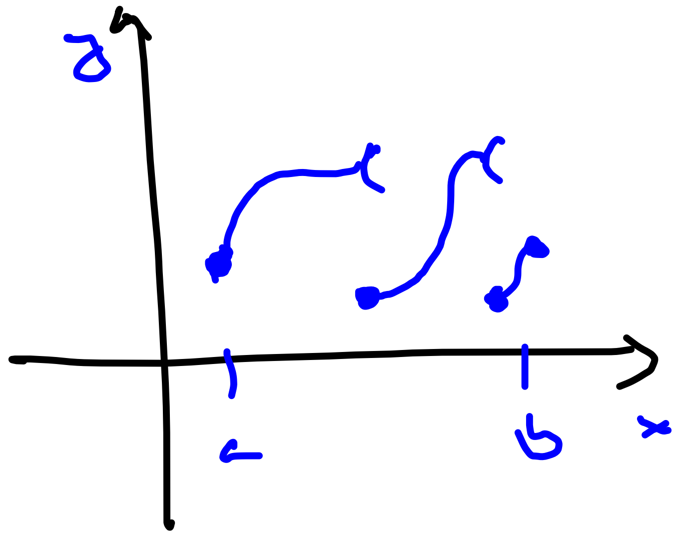
$$= x_1 f(e_1) + \dots + x_n f(e_n)$$

$$= (f_1, \dots, f_n) \cdot \begin{pmatrix} x_1 \\ \vdots \\ x_n \end{pmatrix}$$

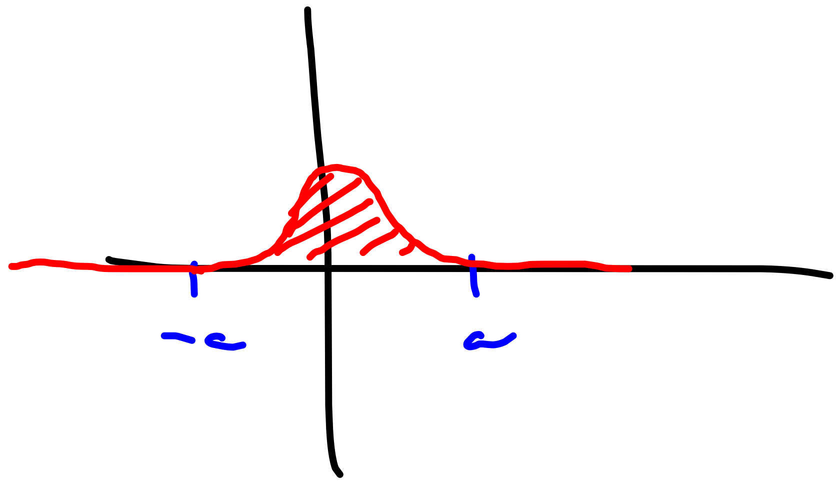
$$\begin{pmatrix} a_{11} & \dots & a_{1n} \\ \vdots & & \vdots \\ a_{m1} & \dots & a_{mn} \end{pmatrix} \cdot \begin{pmatrix} x_1 \\ \vdots \\ x_n \end{pmatrix} = \begin{pmatrix} y_1 \\ \vdots \\ y_m \end{pmatrix}$$

$$A \qquad \text{"} \quad x \qquad \text{"} \quad y$$

$$f(x) = A \cdot x = y$$



$f(x) = y$



jádro $\xi(x,y)$, $\xi : \mathbb{R}^2 \to \mathbb{R}$

f ... po částech spojité na $\mathbb{R}$

$$\bar{f}(y) = L_y(f) = \int_{-\infty}^{\infty} f(x)\,\xi(x,y)\,dx$$

$1, \cos x, \sin x, \cos 2x, \sin 2x, \ldots$

$$f \rightsquigarrow c_n = \frac{1}{2\pi}\int_{-\pi}^{\pi} f(x)\sin nx\,dx$$

---

totéž ale s komplexní složkou:

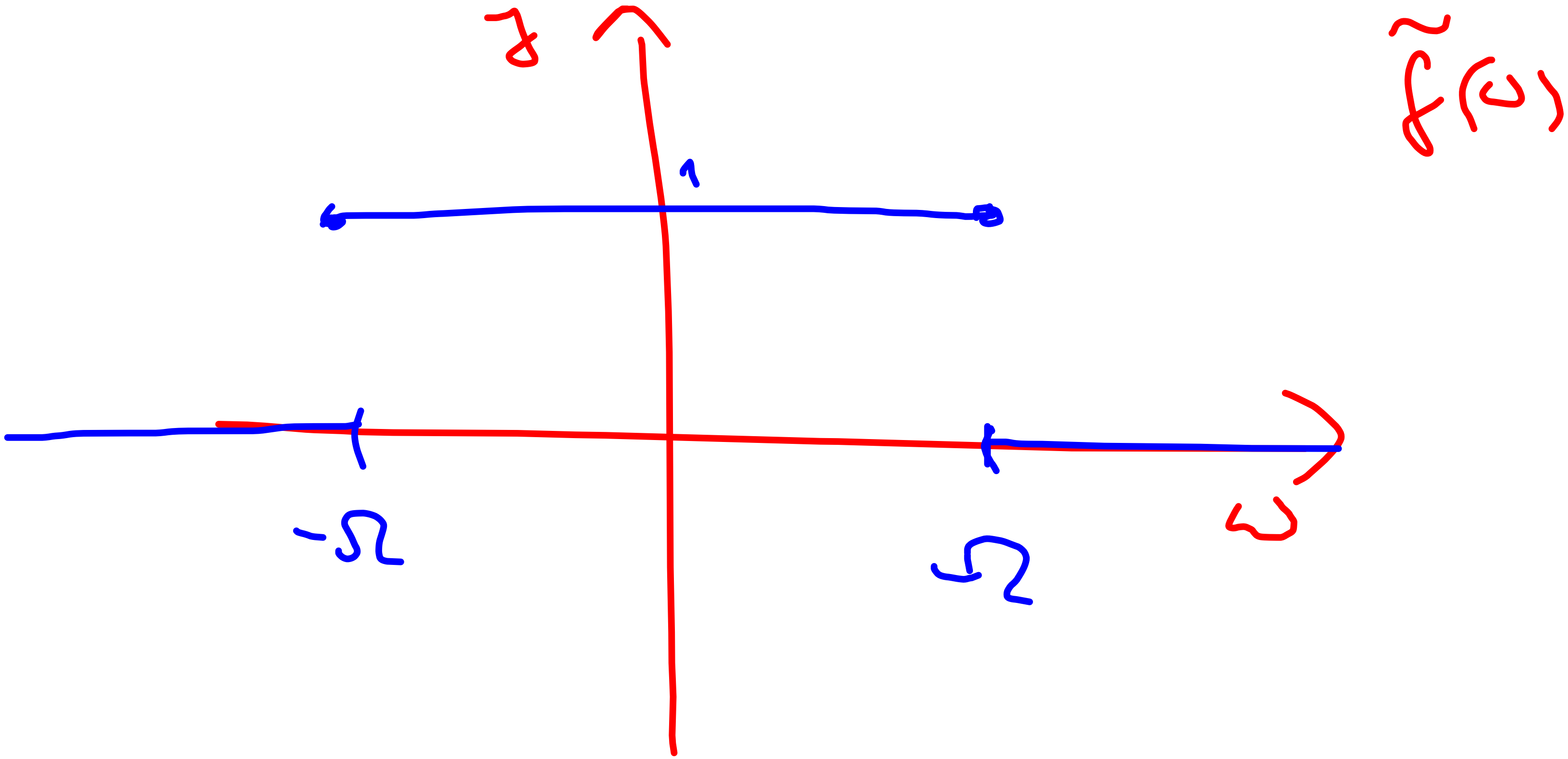
$$c_n = \frac{1}{T}\int_{-T/2}^{T/2} f(t)\left(\cos \omega n t - i \sin \omega n t\right) dt$$

$f \rightsquigarrow$ koeficienty

Für $\xi(x,\omega) = \boxed{e^{-i\omega x}}$

$$\mathcal{F}(f) = \tilde{f}(\omega) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\infty} f(x)\, \xi(x,\omega)\, dx$$

$$\mathcal{F}^{-1}(\tilde{f})(t) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\infty} \tilde{f}(\omega)\, \boxed{e^{i\omega t}}\, d\omega$$

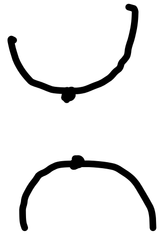


$$e^{-i\omega(u+x)} = e^{-i\omega u} \cdot e^{-i\omega x}$$

$$\boxed{f(x+h) = f(x) + \psi(h)\cdot h}$$

spojité?

$$\frac{f(x+h) - f(x)}{h} = \psi(h)$$



=?

$$f(x+h) = f(x) + f'(x)\cdot h + \frac{1}{2} f''(x)\cdot h^2 + \dots + \frac{1}{n!} f^{(n)}(\theta)\cdot h^n$$