Like funksjon $\Rightarrow$ alle $b_n = 0$

$$a_0 = \langle f \rangle = \tau/T$$

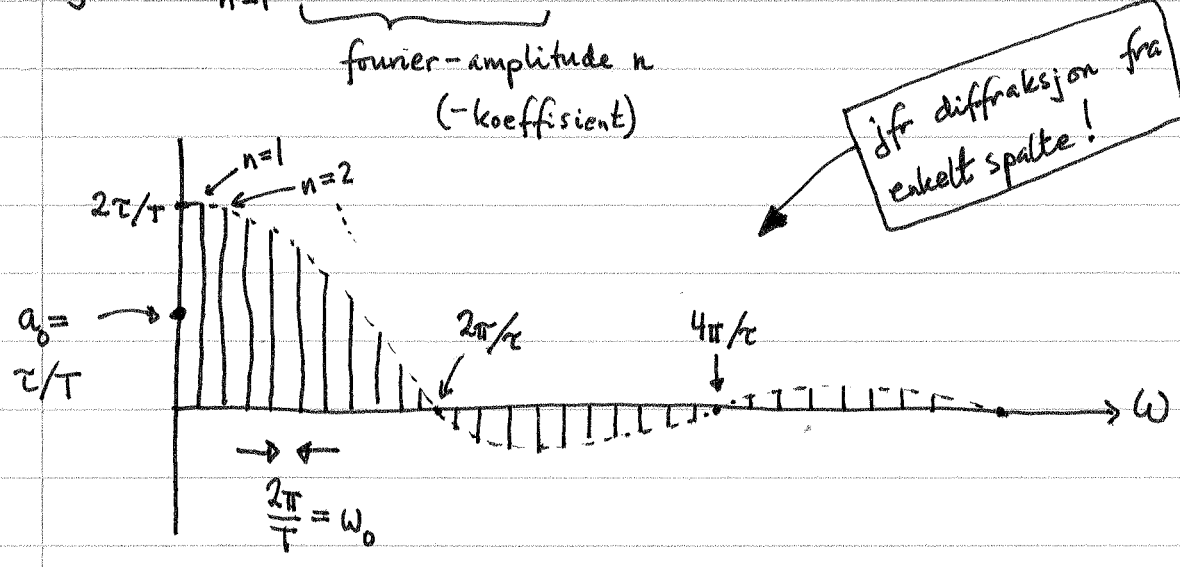
$$a_n = \frac{2}{T}\int_0^T f(t)\cos n\omega_0 t\, dt \qquad (\omega_0 = \tfrac{2\pi}{T})$$

$$= \frac{2}{T}\left\{\int_0^{\tau/2}\cos n\omega_0 t\, dt + \int_{T-\tau/2}^{T}\cos n\omega_0 t\, dt\right\}$$

$$= \frac{2}{T}\,\frac{1}{n\omega_0}\left\{\sin\frac{n\omega_0\tau}{2} - \sin n\omega_0\left(T-\frac{\tau}{2}\right)\right\}$$

$$= \frac{2}{n\pi}\sin\frac{n\pi\tau}{T}$$

$$\Rightarrow f(t) = \sum_{n=1}^{\infty}\underbrace{\left[\frac{2}{n\pi}\sin\frac{n\pi\tau}{T}\right]}_{\text{fourier-amplitude } n\ (\text{-koeffisient})}\cos n\omega_0 t + \frac{\tau}{T}$$



$T \to \infty \Rightarrow$ kontinuerlig fourier-spektrum

Pulsbredde: τ "Båndbredde": $2\pi/\tau$

$\Rightarrow \Delta t \cdot \Delta\omega \sim 2\pi$ (Smal puls krever stor båndbredde, dvs "mange" frekvenser)