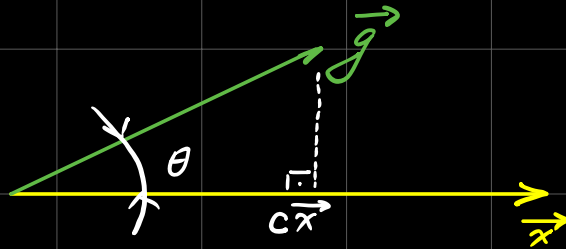


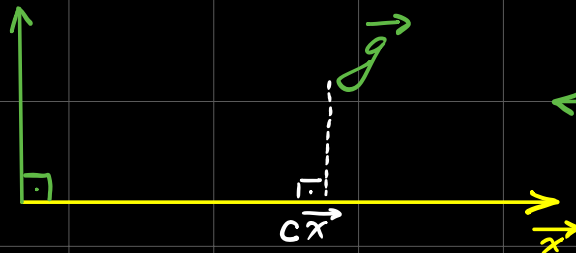
ANALOGIA ENTRE VETORES E SINAIS



$$|\vec{g}| \cdot \cos \theta = c |\vec{x}|$$

$$c = \frac{|\vec{g}| \cos \theta \cdot |\vec{x}|}{|\vec{x}| \cdot |\vec{x}|}$$

"grau de semelhança"

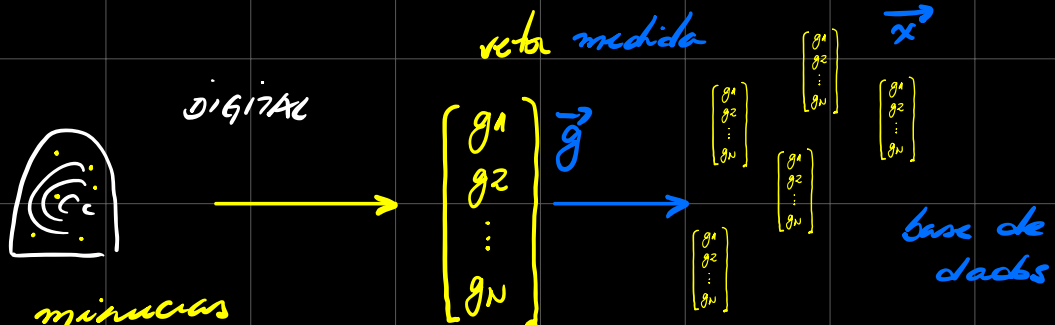


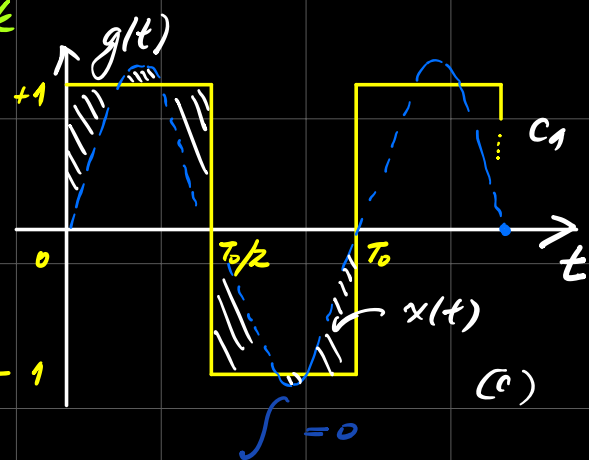
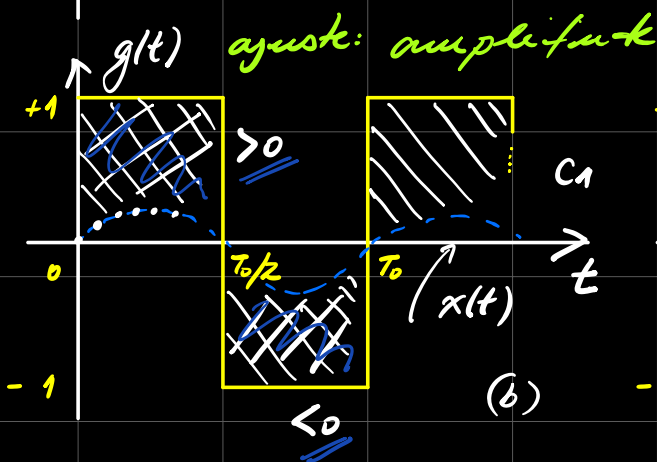
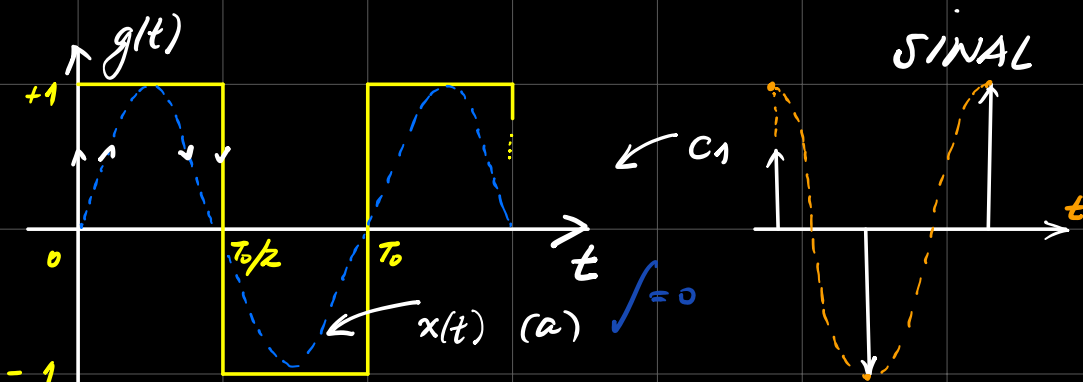
$$c = 0$$

$$* c = \frac{\vec{g} \odot \vec{x}}{\vec{x} \odot \vec{x}}$$

cálculo

exemplo de aplicação:





Semelhancas \rightarrow área

$$\text{ERRO}(c) = \int_{-T_0/2}^{T_0/2} [g(t) - c \cdot x(t)]^2 dt$$

min

fixo

amplitude variável

$\min_c \text{ERRO}(c)$

erro entre os sinais a partir da área.

$$\frac{d \text{ERRO}(c)}{dc} = 0$$

minimo

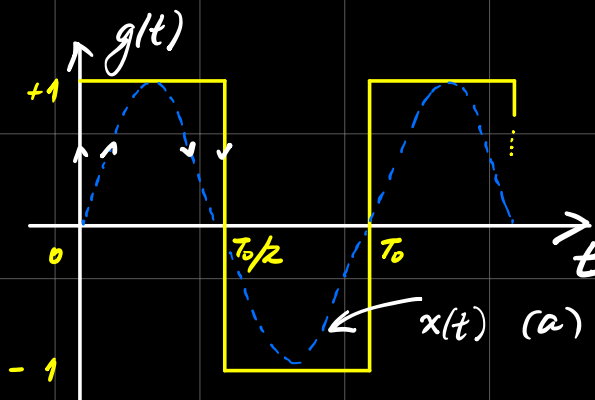
$$\text{ERRO}(c) = \underbrace{\int_{T_0} g^2(t) dt}_{N1} - 2c \underbrace{\int_{T_0} g(t) x(t) dt}_{N2} + c^2 \underbrace{\int_{T_0} x^2(t) dt}_{N3}$$

$$ERRO(c) = N_1 - 2c N_2 + c^2 N_3$$

$$\frac{d ERRO(c)}{dc} = 0 - 2N_2 + 2c N_3 = 0$$

$$c = \frac{N_2}{N_3} = \frac{\int_{T_0} g(t)x(t) dt}{\int_{T_0} x^2(t) dt}$$

N_2 N_3



$$T_0 = 2\pi \Rightarrow c = ?$$

$$c = \frac{\int_0^{\pi} (+1) \cdot \sin(t) dt + \int_{\pi}^{2\pi} (-1) \sin(t) dt}{\int_0^{2\pi} \sin^2(t) dt} = \frac{4}{\pi}$$

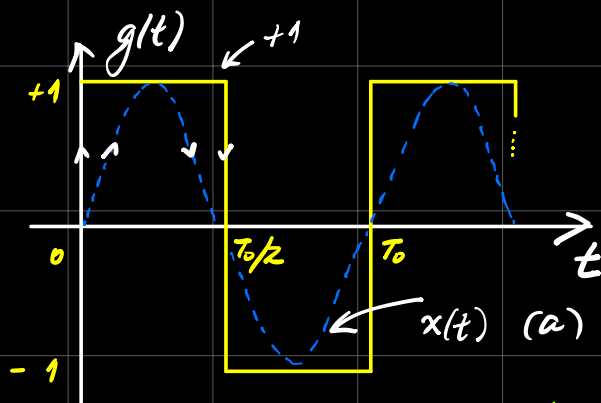
$$c = \frac{\vec{g} \odot \vec{x}}{\vec{x} \odot \vec{x}} \iff c = \frac{\int_{T_0} g(t)x(t) dt}{\int_{T_0} x^2(t) dt}$$

"escalar" "escalar"

"energia" SINAIJ

VETORES

$$\int_0^{T_0} [g(t) - c \cdot x(t)]^2 dt$$



$$\int_0^{\pi} (+1 - c \sin(t))^2 dt + \int_{\pi}^{2\pi} (-1 - c \sin(t))^2 dt \quad \underline{\underline{?}}$$