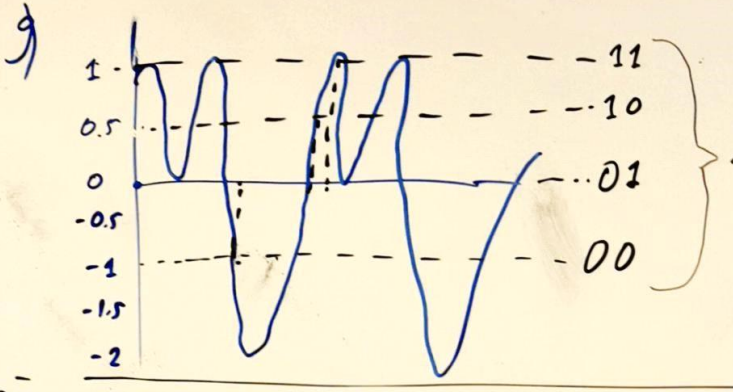
Lec 12



2-bit ADC go brrrr

Quantization error makes it impossible to reconstruct x(t) perfectly.

Problem 2

$m(t) = 0.5\cos(200\pi \cdot t) + \cos(400\pi t)$, $K_A = 0.5$, $f_c = 2kHz$, $A_c = 10V$

Calc AM system modulated signal ($m(t)$), plot its spectrum K_A, f_c, A_c

AM signal in time

$$s(t) = A_c\left[1 + K_A m(t)\right]\cos(w_c \cdot t)$$

$$= 10\left[1 + 0.5\left(0.5\cdot\cos(200\pi\cdot t) + \cos(400\pi t)\right)\right]\cos(2E3\cdot 2\pi\cdot t)$$

$$= \cos(4000\pi\cdot t)\left(10\cdot\cos(200\pi\cdot t)^2 + \frac{5\cos(200\cdot\pi t)}{2} + 5\right)$$