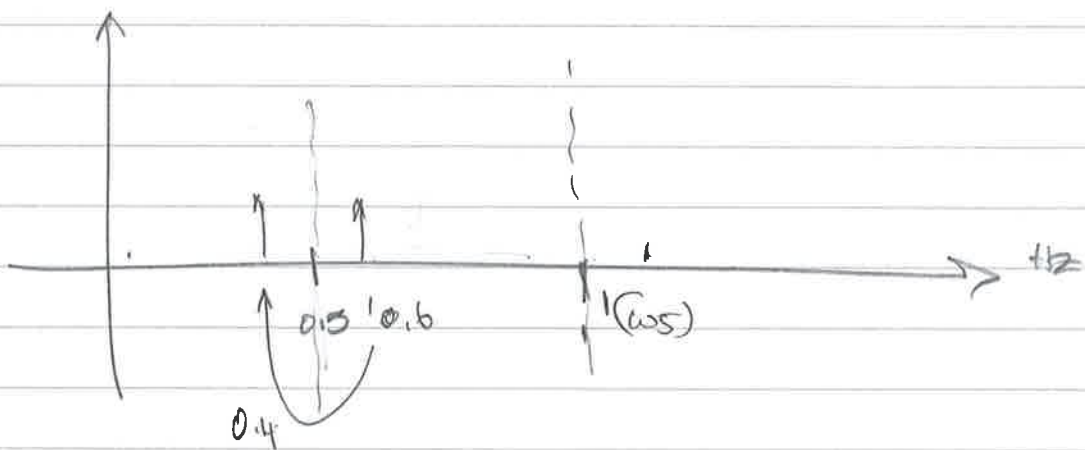
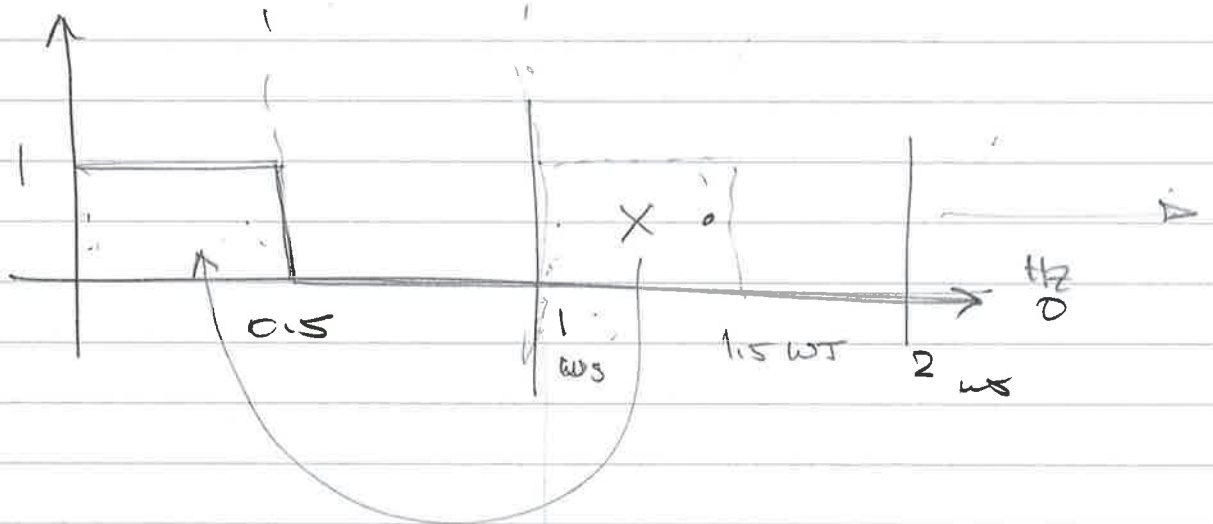
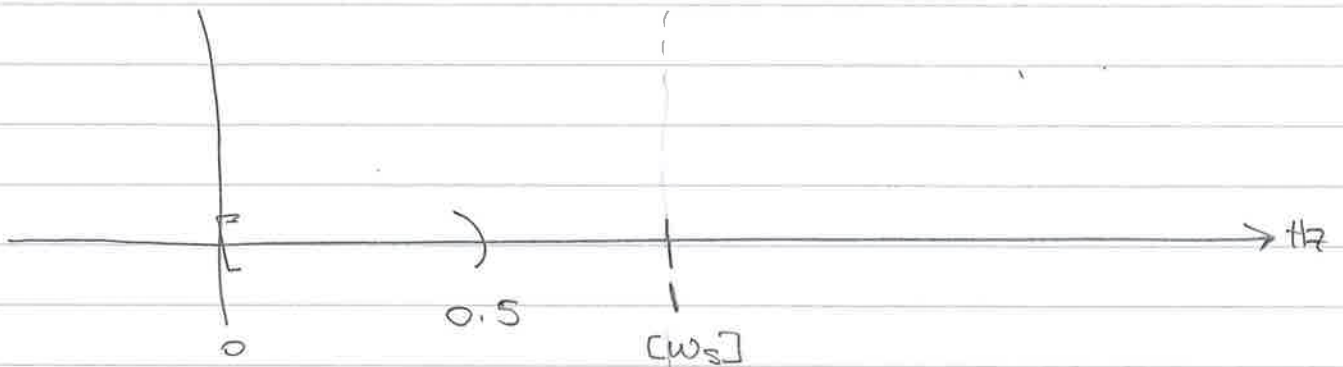
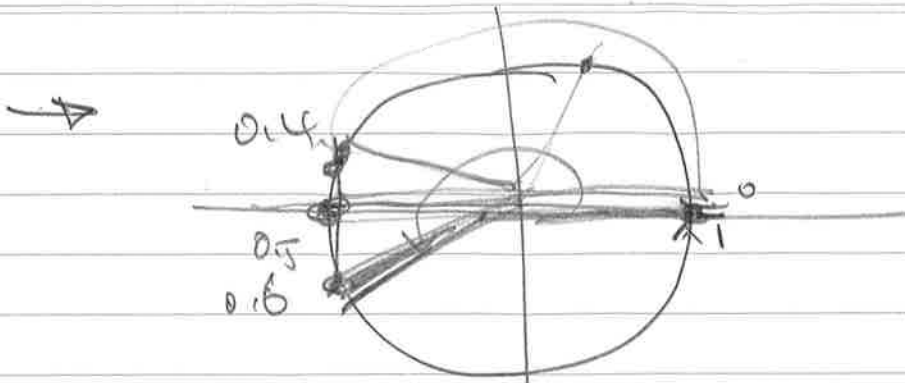


→ SPNS - 3 | 23/2015 — ELEC 3004 — LECTURE 4

ALIASING

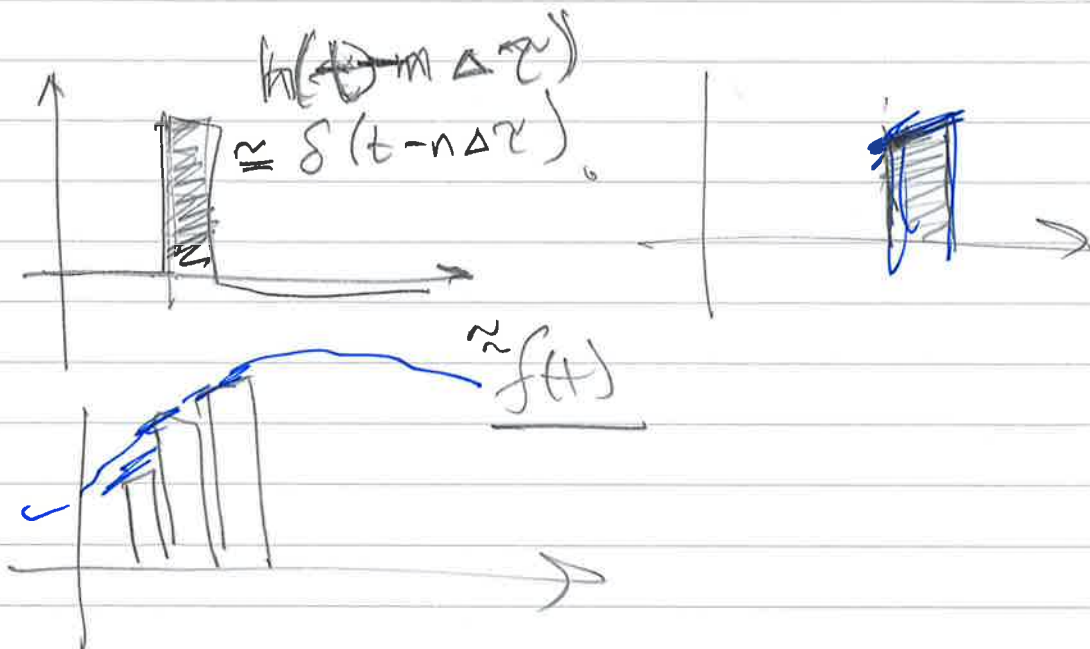
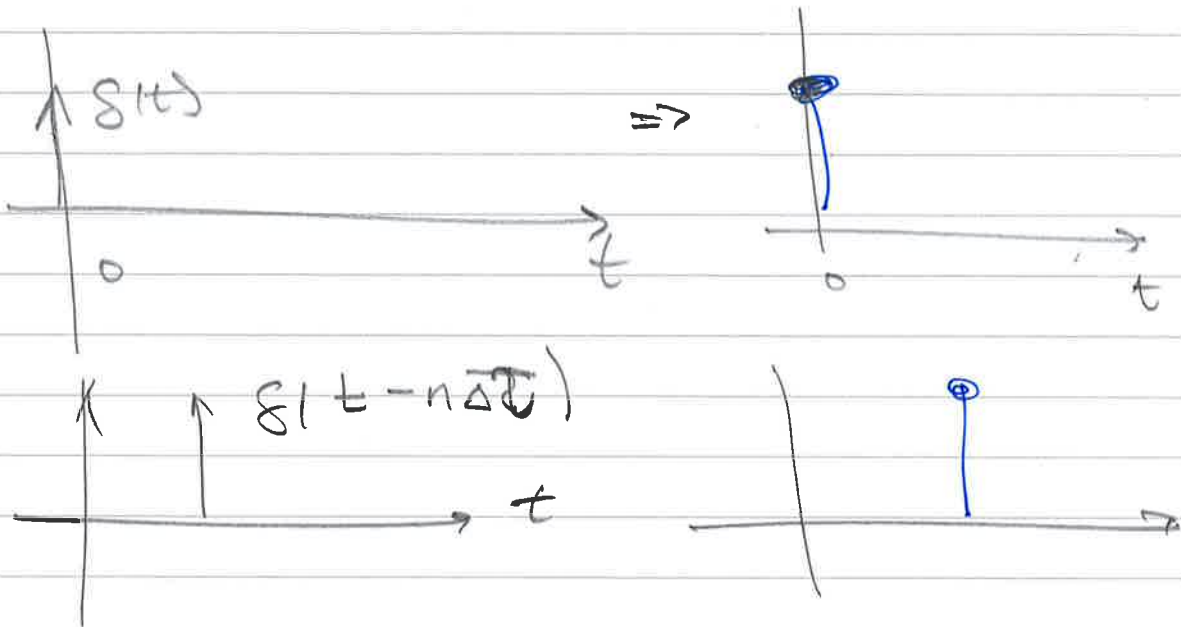
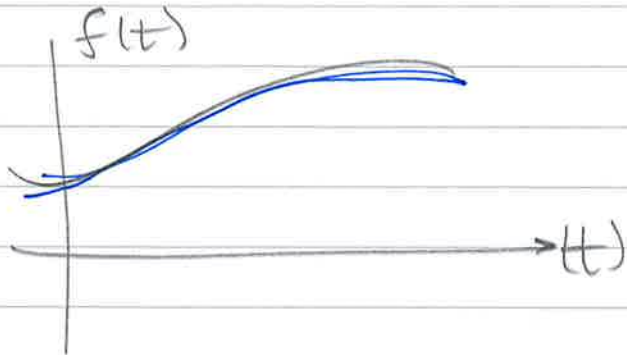




→ Intuition on number effect in ellipses



Intuition on digital signals & convolution
 [Lathi - p. 119]



PERIODIC CONVOLUTION

for periodic signals

if $x(t)$ & $h(t)$
are • periodic
• common period T

then

(1) $y(t) = x(t) * h(t)$
does not converge

(2) But we can define a PERIODIC CONV.

$$y(t) = x(t) \circledast h(t)$$

$$= \int_0^T x(\tau) h(t - \tau) d\tau$$

[1] OUTPUT CONVOLUTION $y(t)$ IS PERIODIC w/ T

[2] SHIFTING

$$y(t) = \int_{t_0}^{t_0+T} x(\tau) h(t - \tau) d\tau$$

→ DISCRETE VERSION

$$y[n] = \sum_{k=0}^{N-1} x[k] h[n-k]$$
