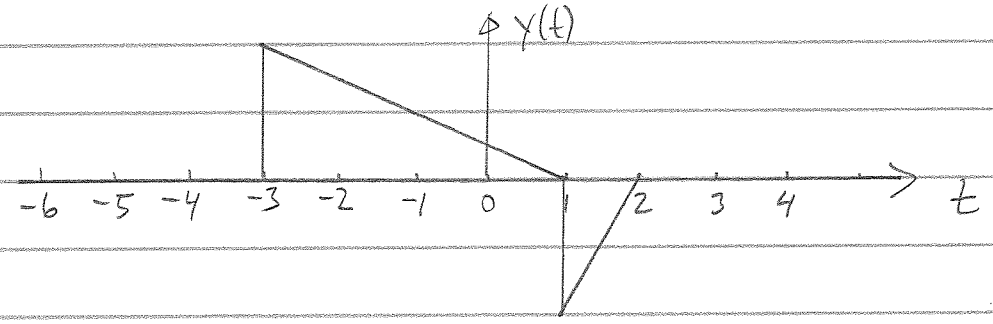
SSY041A 100823

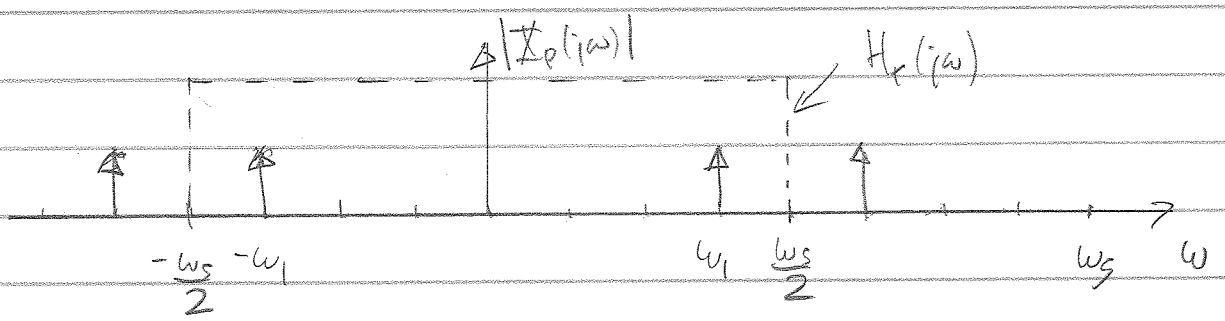
1a/



b/ N=20

2/ $y[n] = \delta[n] + \delta[n-3] - \delta[n-4] - \delta[n-7]$

3a/



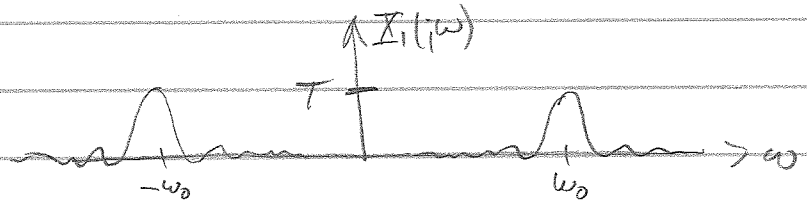
b/ Utsignal från rekonstruktionsfiltret $H_r(j\omega)$:

$y(t) = x(t) = \sin(\omega_1 t)$

4/ a/ $|X(j\omega)|_{max} = 2T$, $X(j\omega) = 0$ för $\omega = \frac{\pi}{T} \cdot n$

$n = 1, 2, 3, \ldots$

b/



$|X_1(j\omega)|_{max} = T$

5/ a/ $H(j\omega) = \frac{j\omega}{\frac{R}{L} + j\omega}$ $\qquad \omega_0 = \frac{2\pi}{T}$

b/ $u_L(t) = 4\pi \sum_{k=1}^{3} \frac{1}{k} \frac{k\omega_0}{\sqrt{\left(\frac{R}{L}\right)^2 + (k\omega_0)^2}} \sin\left(k\omega_0 t + \arg\left\{\frac{jk\omega_0}{\frac{R}{L} + jk\omega_0}\right\}\right)$