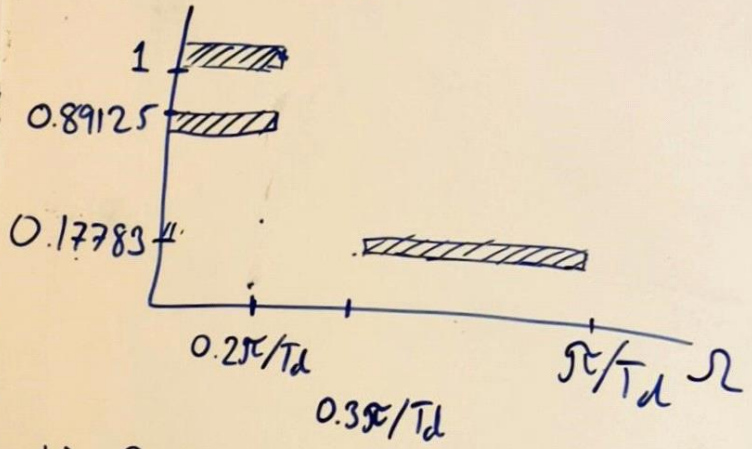
Lec 1 Sick 6/2

$\Omega = \omega T_d$

7.2

a) $0.89125 \le |H(j\Omega)| \le 1$ $\quad 0 \le |\Omega| \le 0.2\pi/T_d$

$|H(j\omega)| \le 0.17783$ $\quad 0.3\pi/T_d \le \pi/T_d$



b) Butterworth Frequency response is monotonic

$$|H_c(j0.2\pi)|^2 = \frac{1}{1+\left(\frac{0.2\pi}{\Omega_c T_d}\right)^{2N}} = (0.89125)^2$$

$$|H_c(j0.3\pi)|^2 = \frac{1}{1+\left(\frac{0.3\pi}{\Omega_c T_d}\right)^{2N}} = (0.17783)^2$$

To get $\Omega_c T_d = 0.704$, $N = 5.88$

Round N up to 6 yields: $\Omega_c T_d = 0.703$