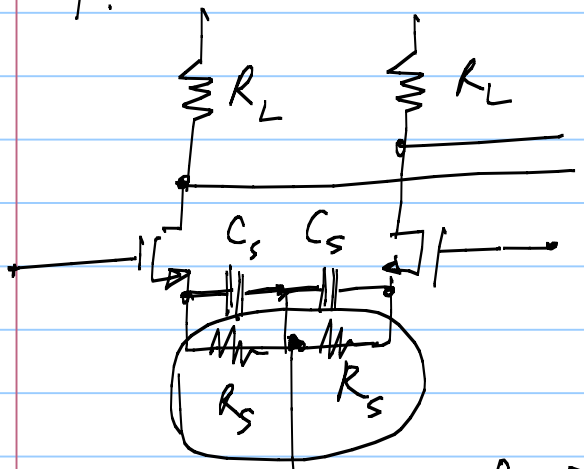
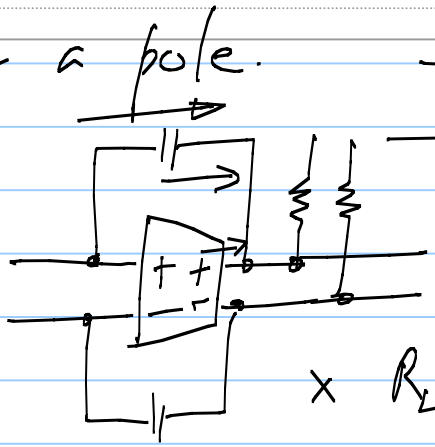
CT Equalizer:

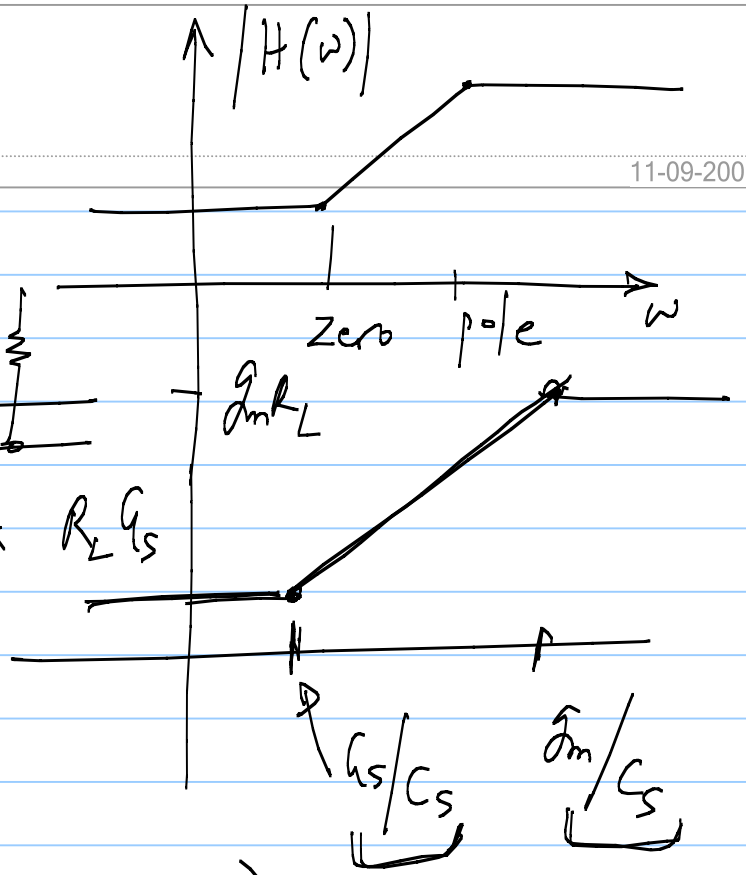
Note Title 11-09-2007

Response with a zero & a pole.





$\times\ R_L G_s$

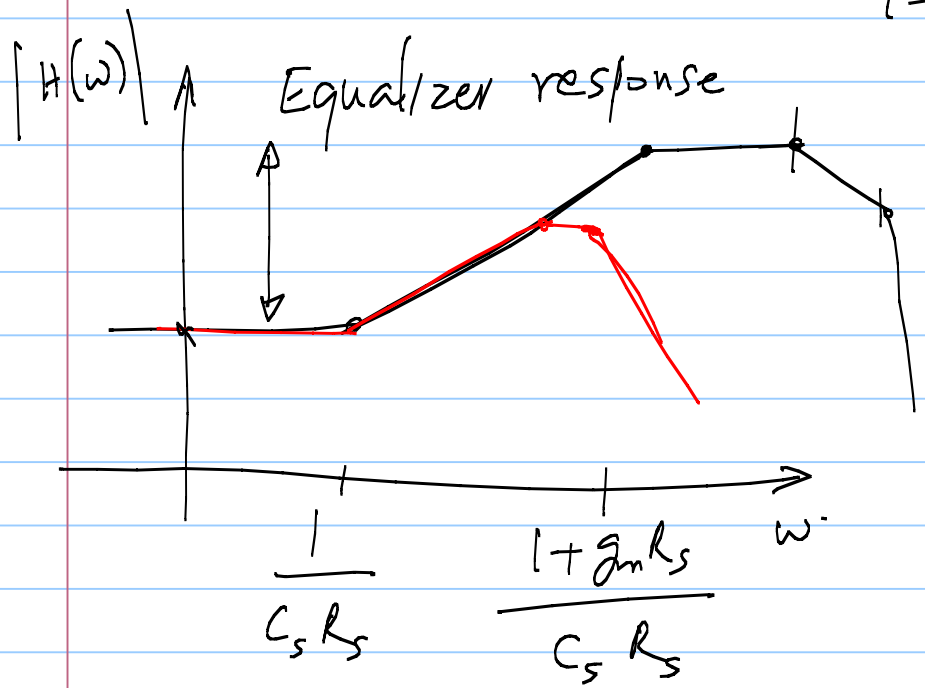


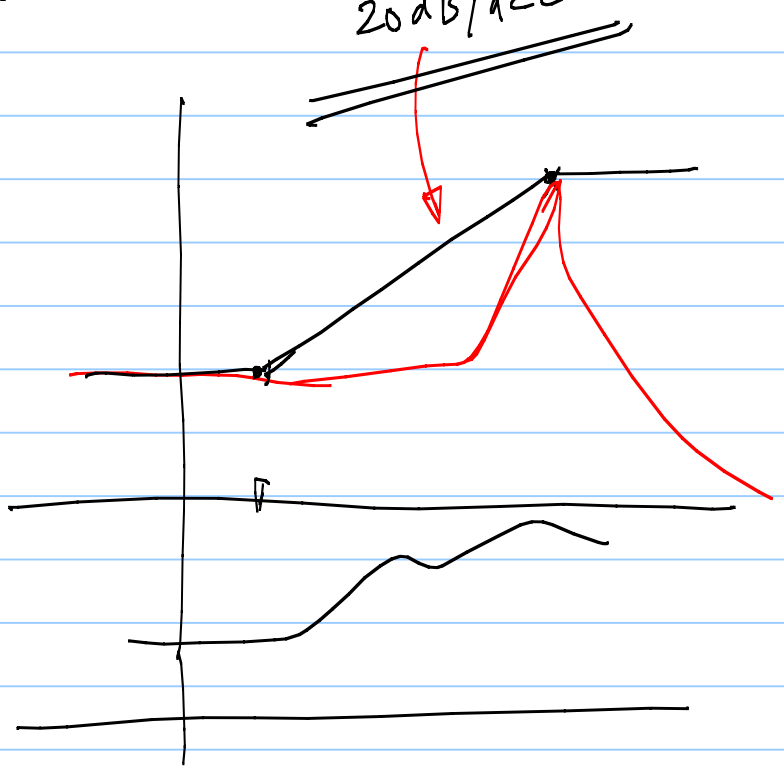
$$R_s \gg \frac{1}{g_m}$$

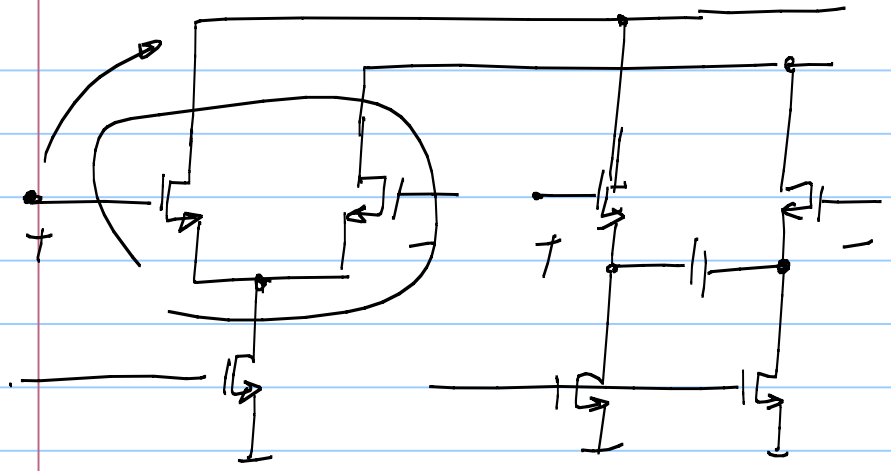
$$\frac{R_L}{R_s} \longrightarrow R_L\left(G_s + sC_s\right)$$

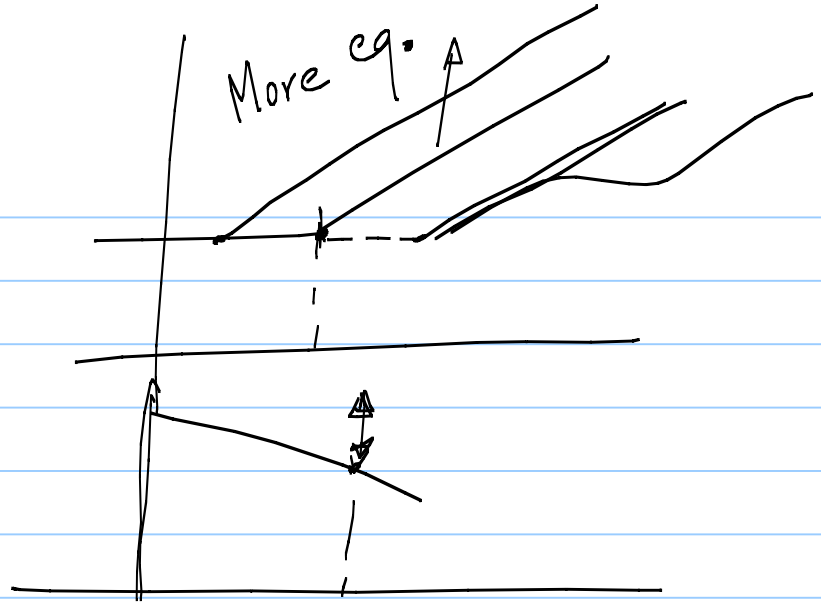
$$\frac{g_m R_L}{1 + g_m \cdot Z_s} = \frac{g_m R_L}{1 + g_m \left(\frac{R_s}{1 + sC_s R_s} \right)} = g_m R_L \cdot \frac{1 + sC_s R_s}{1 + g_m R_s + sC_s R_s}$$

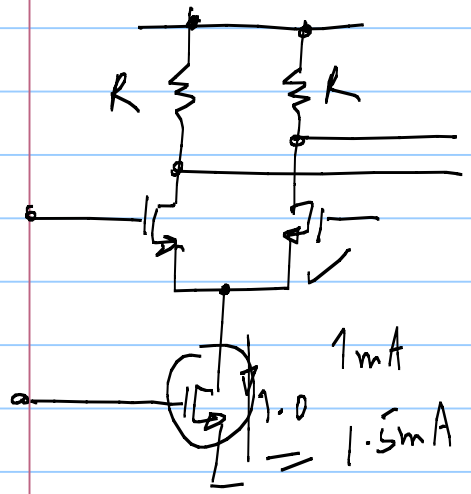
$$= \frac{g_m R_L}{1 + g_m R_s} \cdot \frac{1 + sC_s R_s}{1 + s \cdot C_s \cdot \frac{R_s}{1 + g_m R_s}} = \frac{1}{1 + \frac{s/\omega_0}{Q} + (s/\omega_0)^2}$$

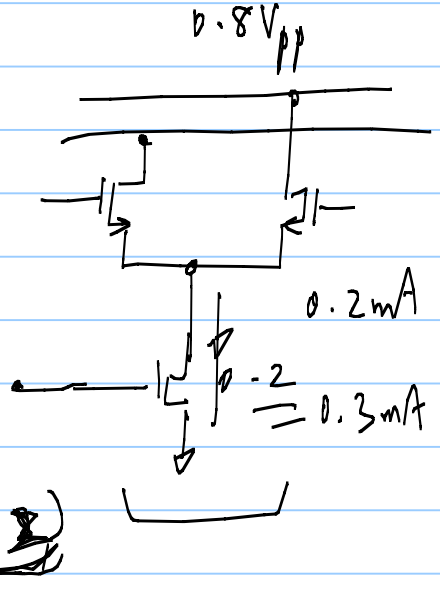






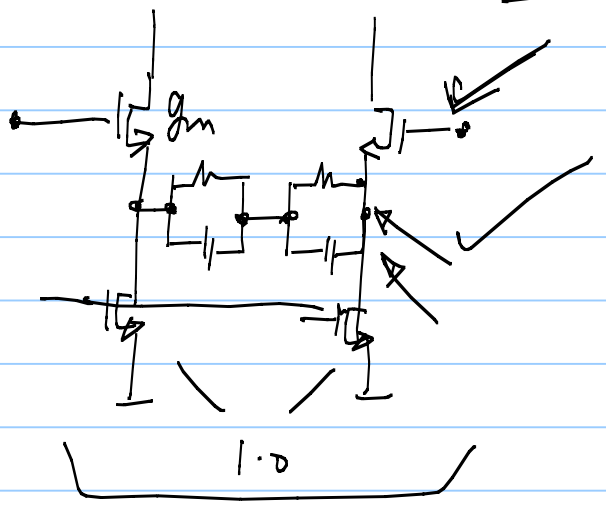


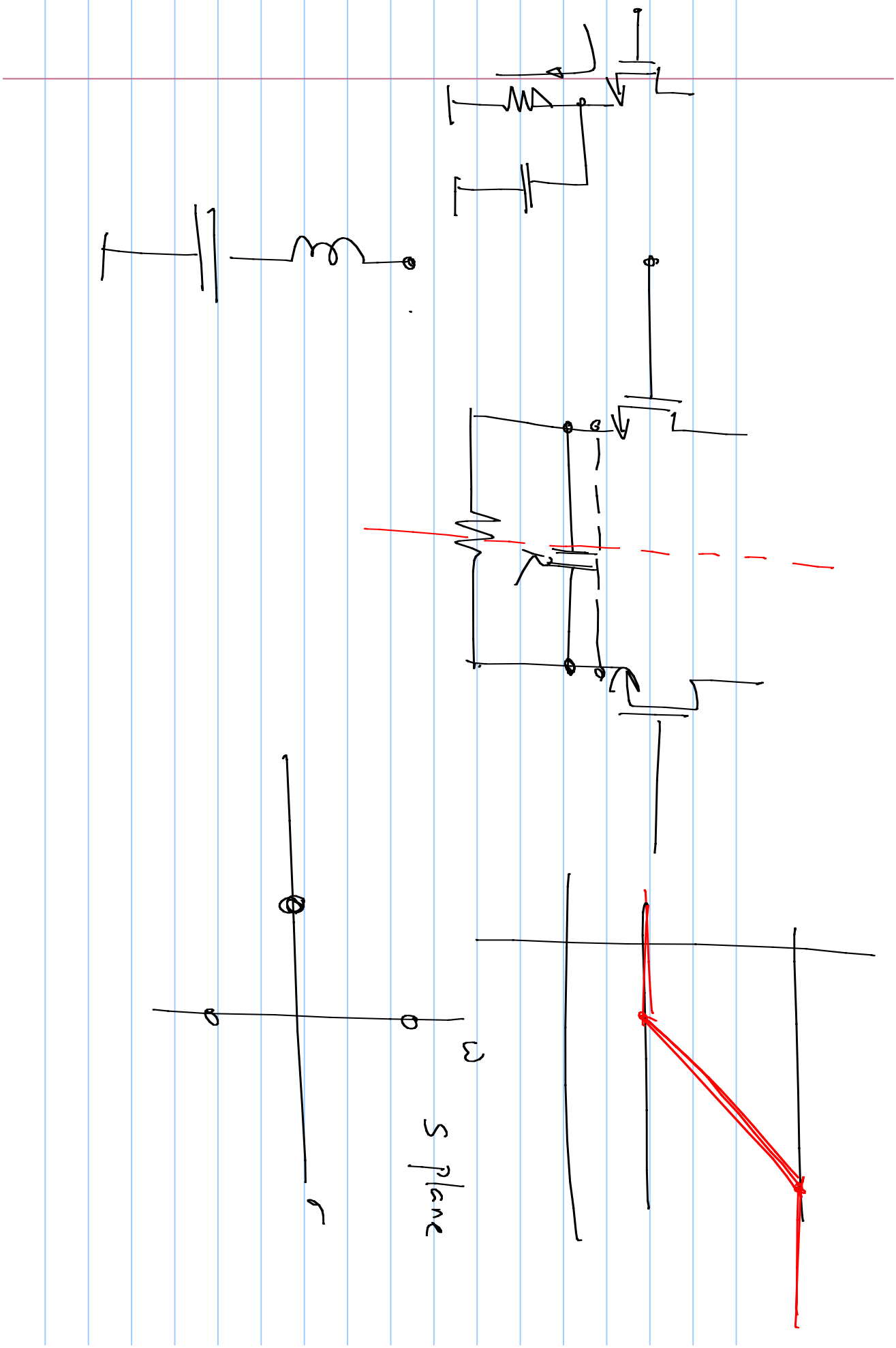


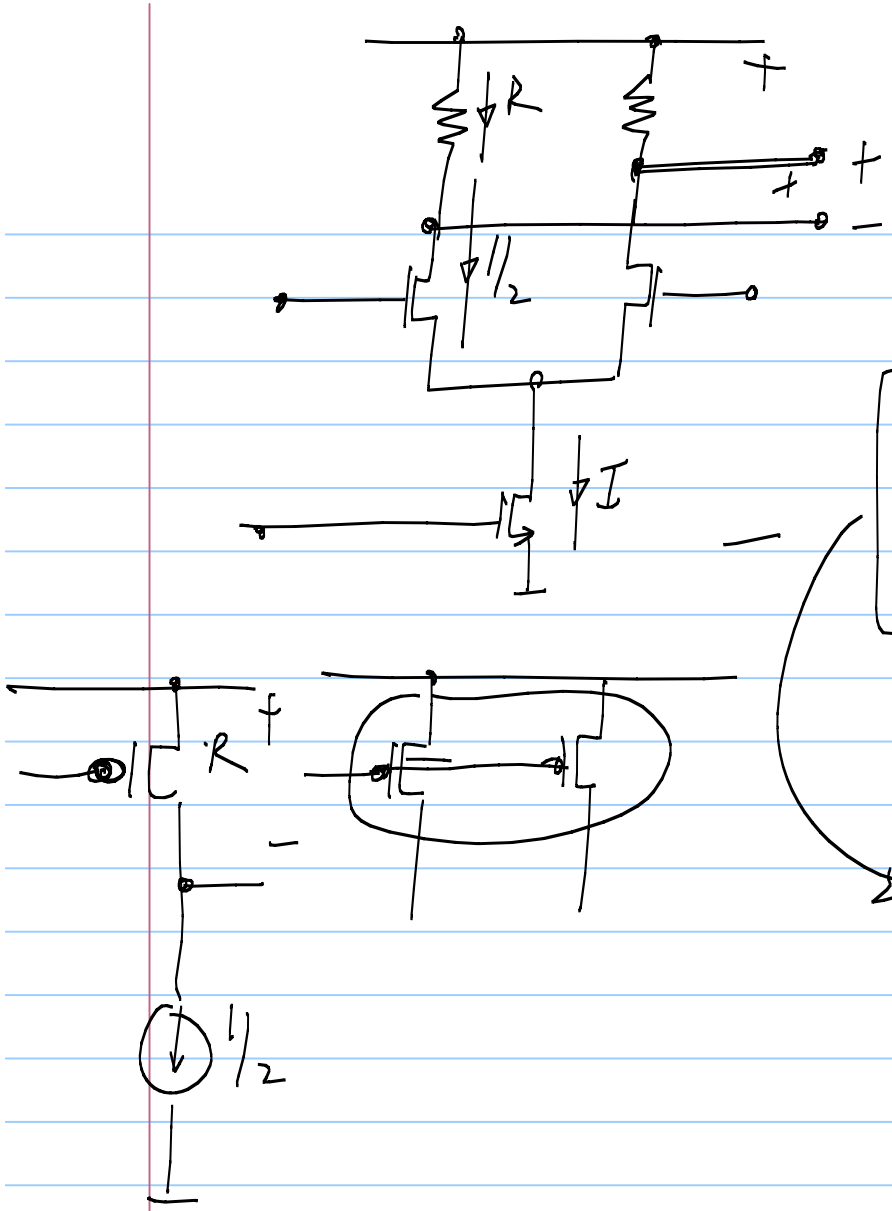


(1, −0.2)

CT Equalizer




S plane



R (on chip) ± 25%

225mV ←

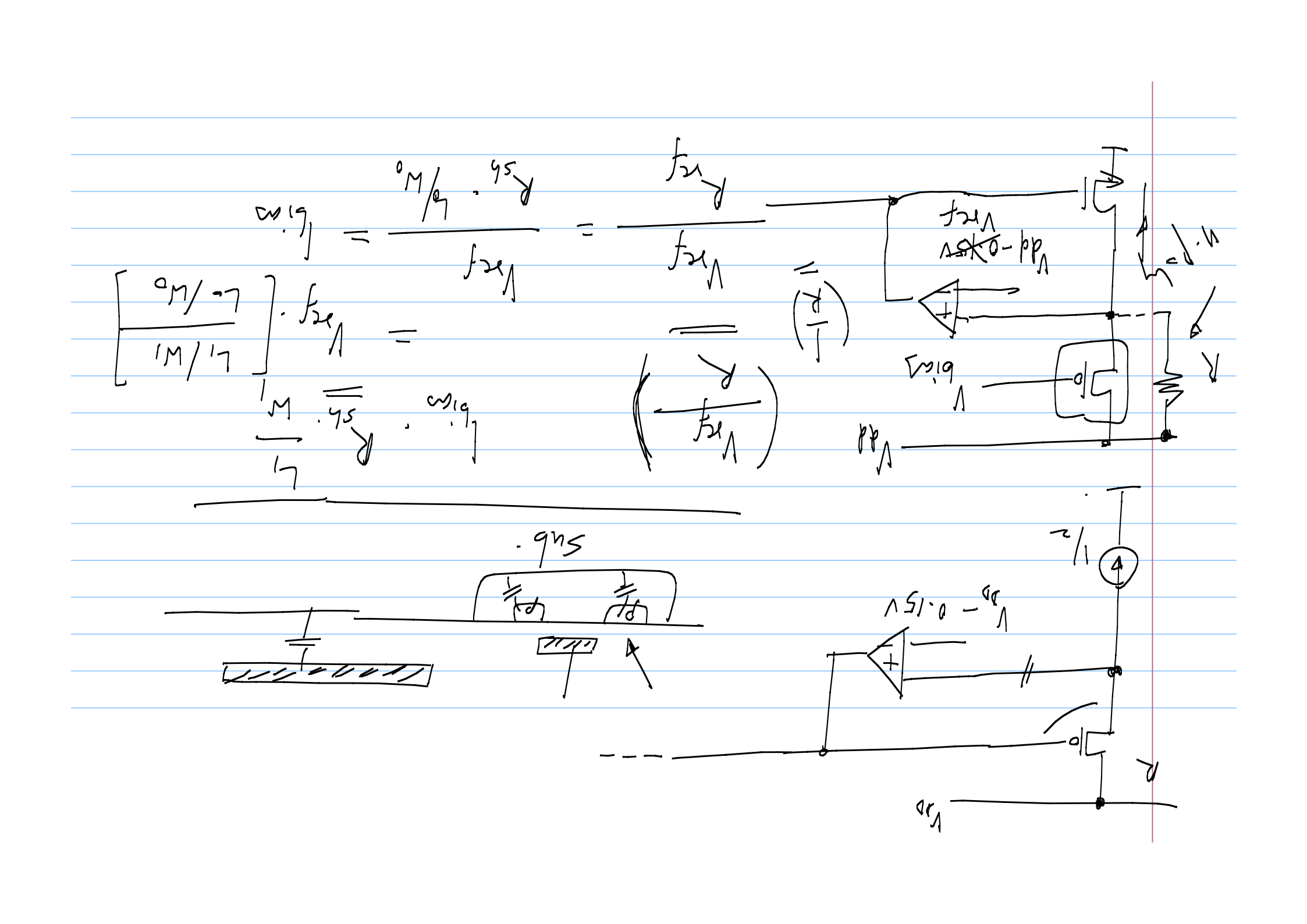
1/R : 300mV

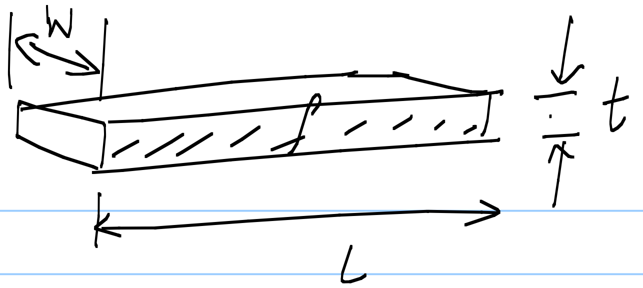
375mV ←

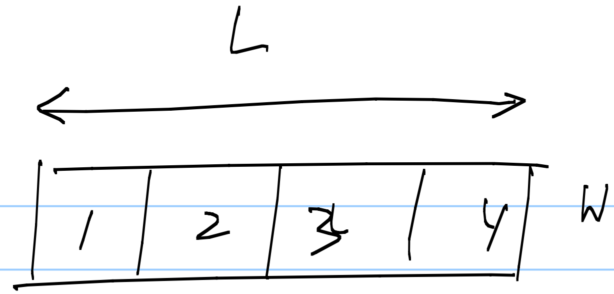
① Measure the o/p, adjust I

② Make a tunable resistor (pMOS) – adjust that

Measure the o/p cm voltage & adjust the resistance current







$\rho \cdot \frac{L}{W t}$ $\left(\frac{\rho}{t}\right)\left(\frac{L}{W}\right)$ $\frac{L}{W}$

R_{sh}

$\epsilon \cdot \frac{A}{d}$ $\Omega/sq.$