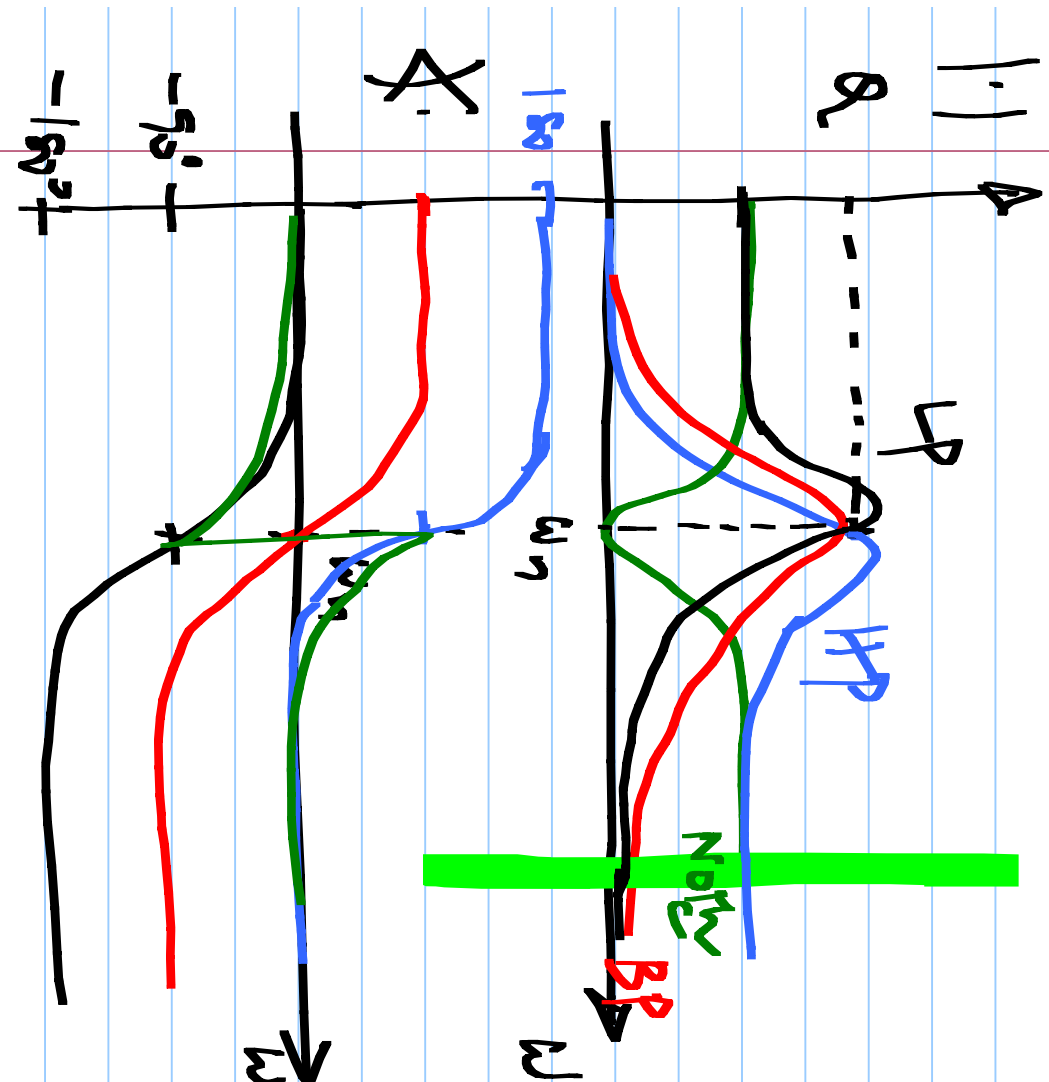


EE 2019

$\omega_n \rightarrow \omega$

28/3/2018



Low-pass

$$\frac{1}{(s/\omega_n)^2 + s/\omega_n + 1}$$

High-pass

$$\frac{(s/\omega_n)^2}{D_2(s)}$$

Band-pass

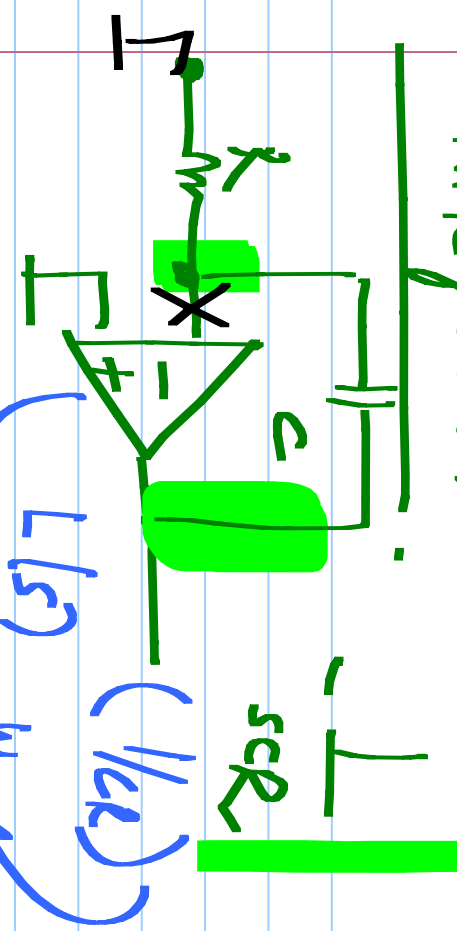
$$\frac{(s/\omega_n)}{D_2(s)}$$

Band-stop

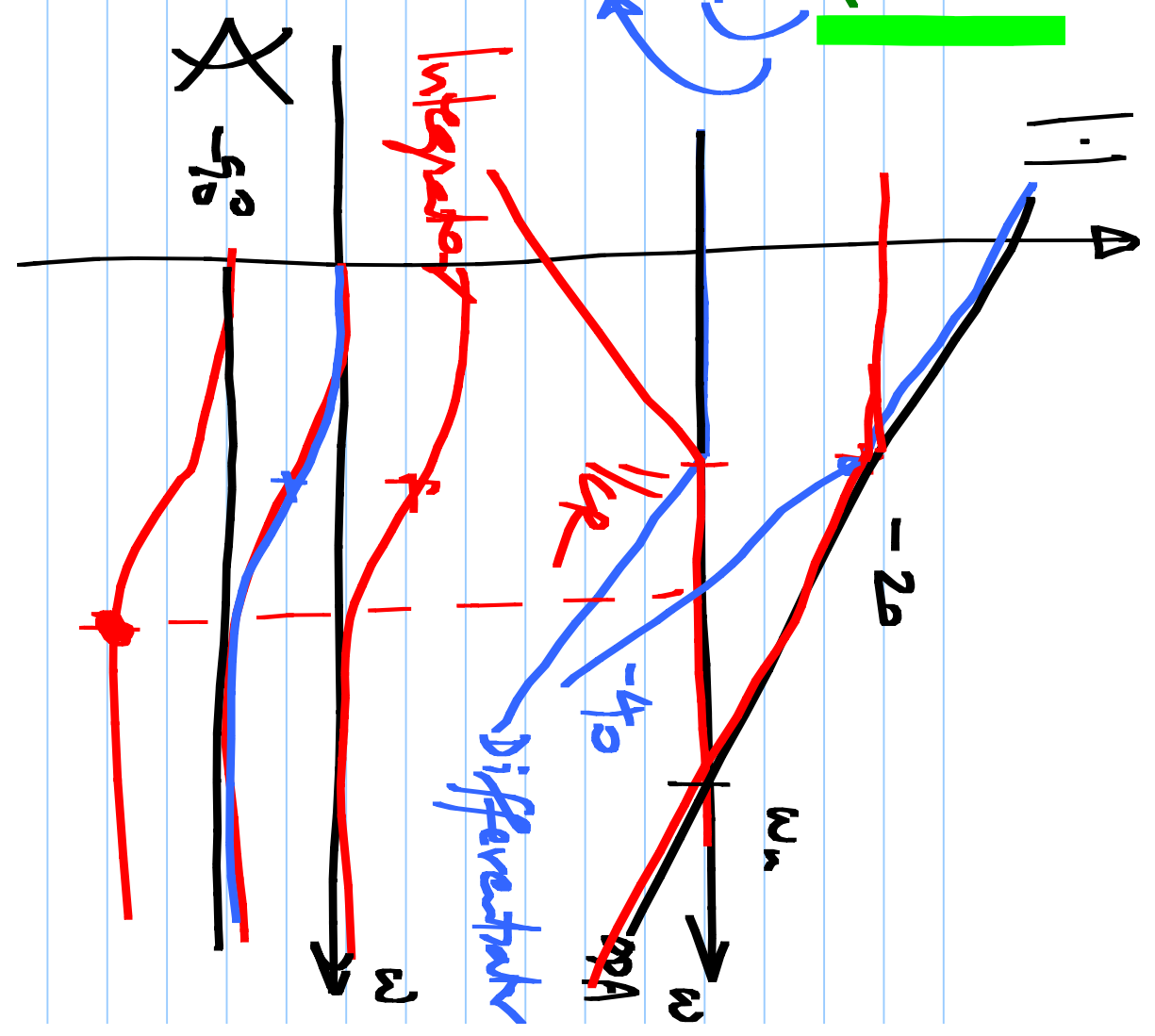
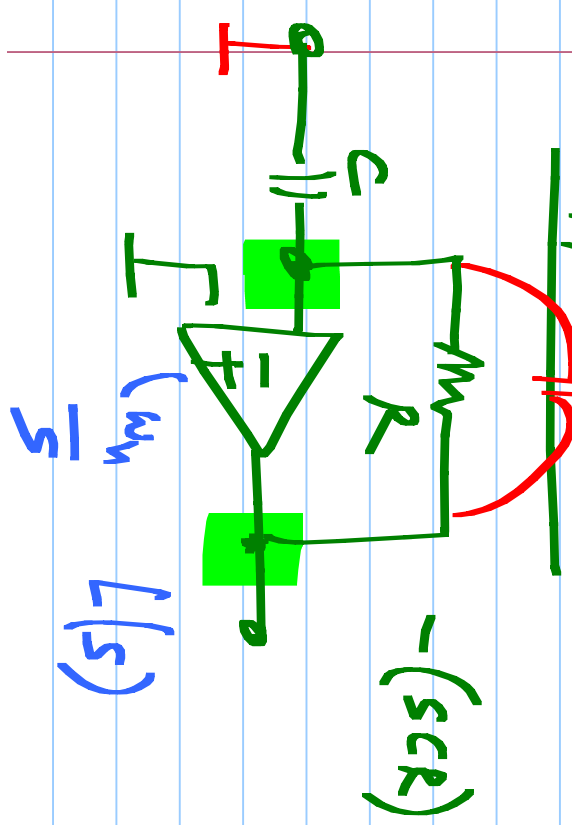
$$\frac{1 + (s/\omega_n)^2}{D_2(s)}$$

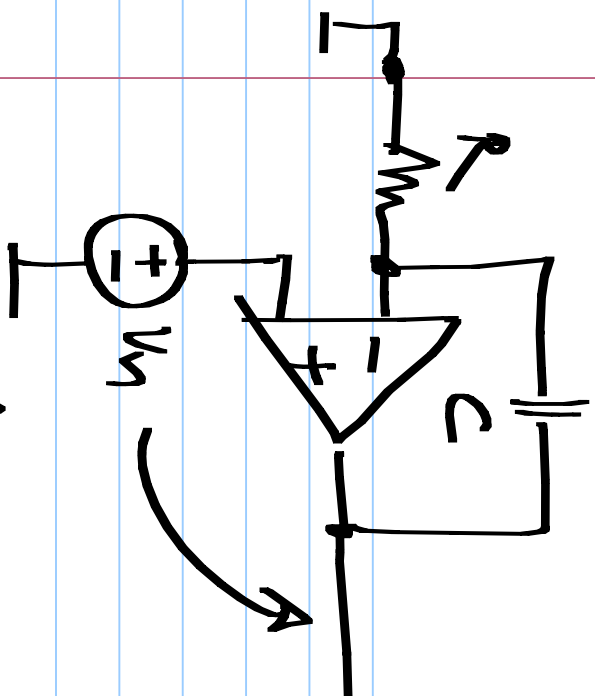
Notch

Integrator:

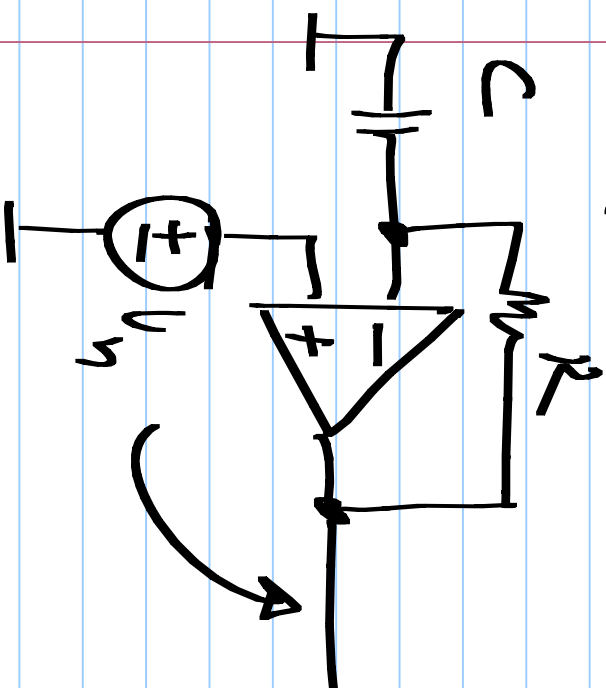


Differentiator

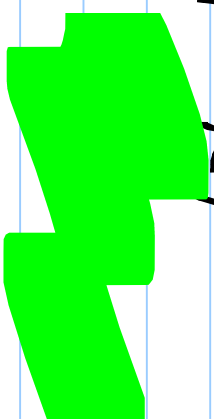


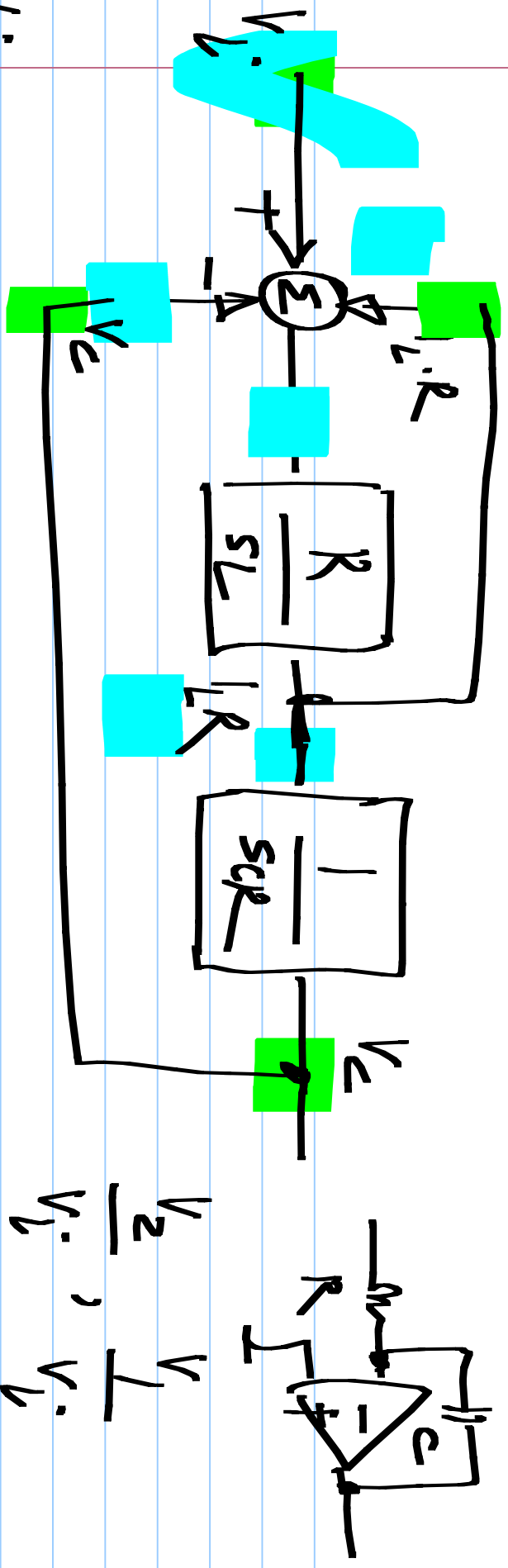


$$\frac{V_o}{V_n} = \left(1 + \frac{1}{sCR}\right)$$

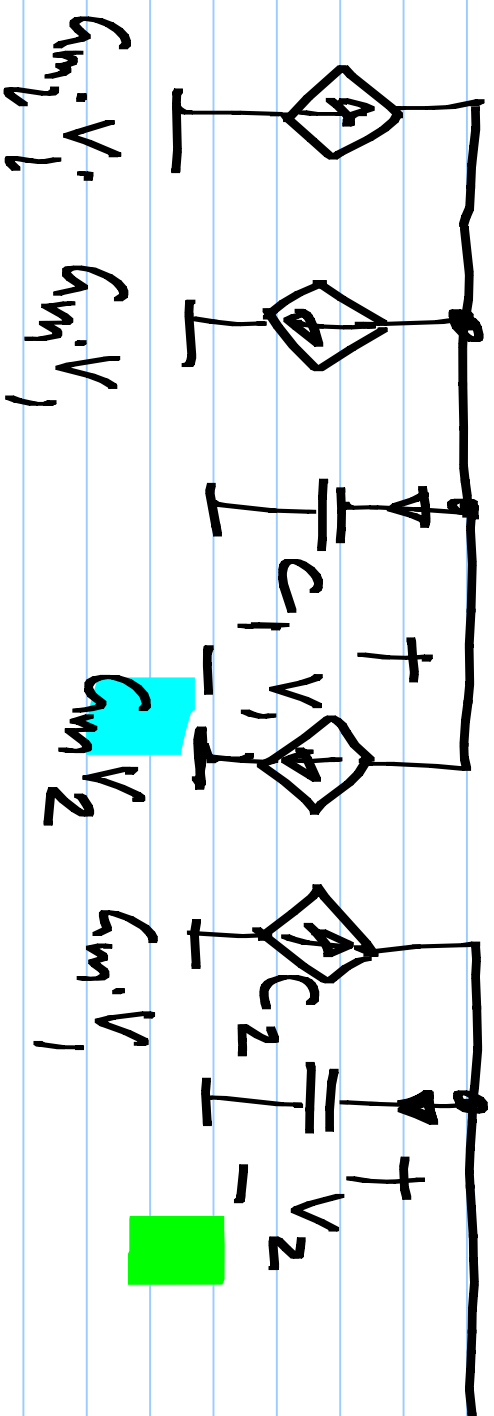


$$\frac{V_o}{V_n} = (1 + sCR)$$



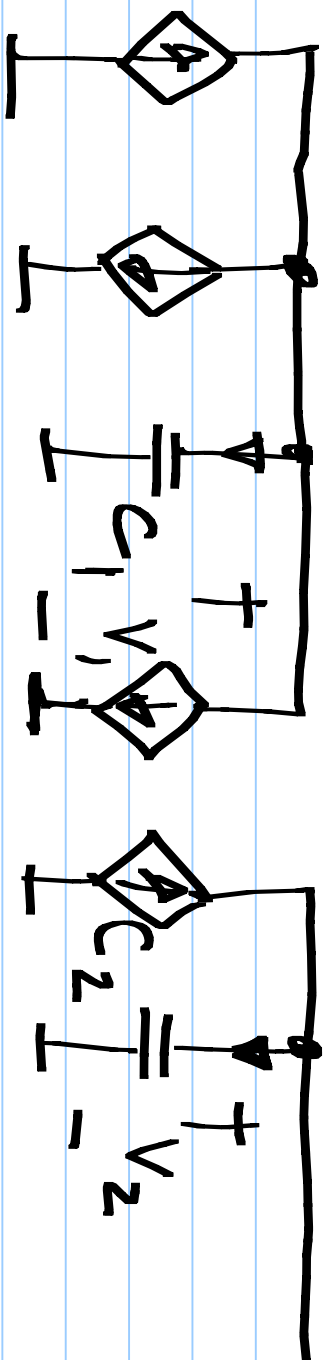


V_L



$\frac{V_L}{2}, \frac{V_L}{V_L}$

V_2



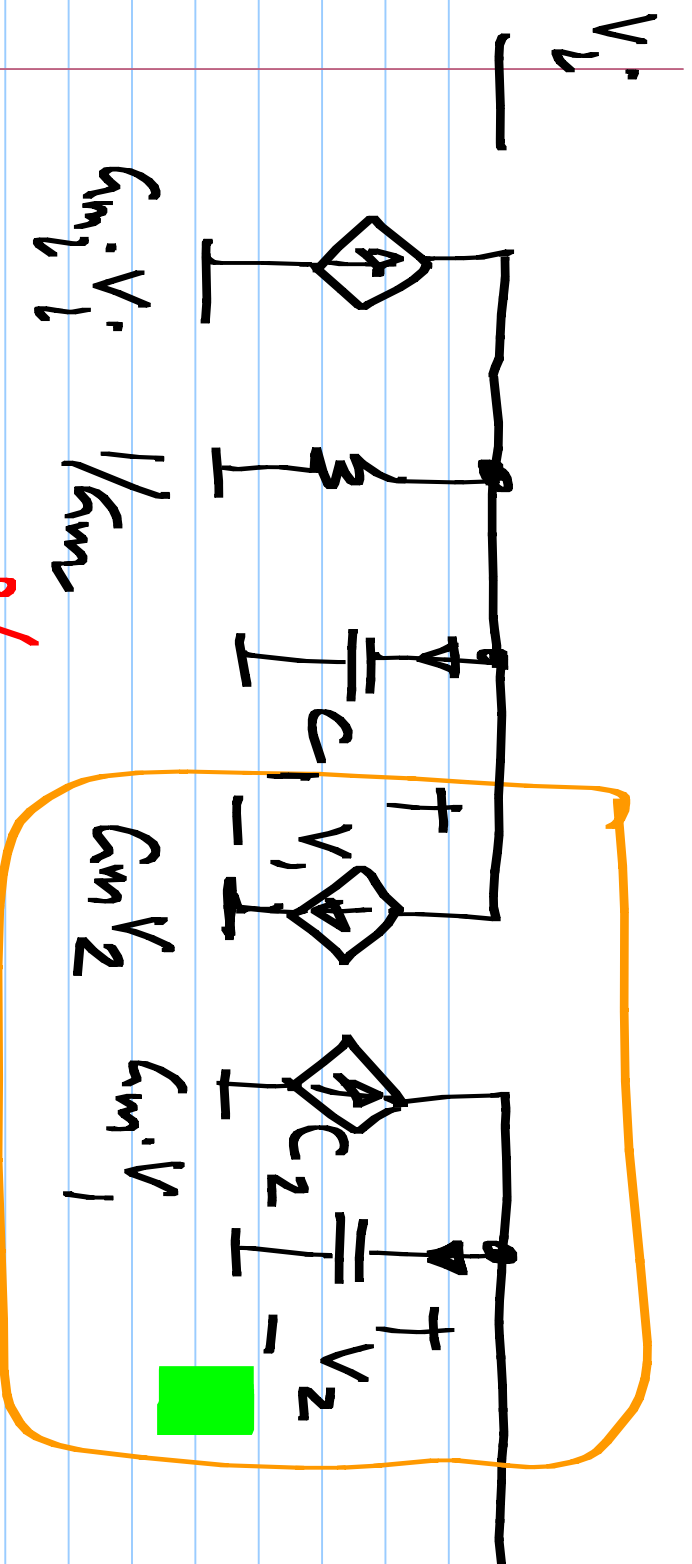
$$g_{m2} \cdot V_1 \quad g_{m1} \cdot V_2 \quad g_{m1} \cdot V_2 \quad g_{m2} \cdot V_1$$

$$g_{m1}/g_{m2}$$

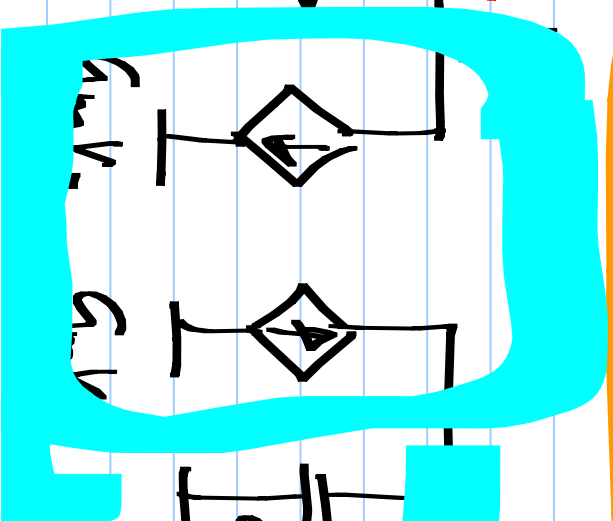
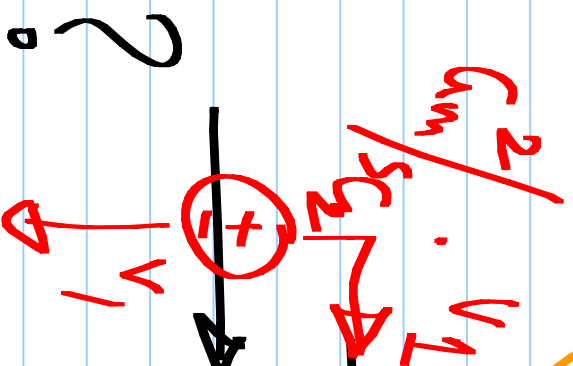
$$\underline{V_2} = \frac{s^2 C_1 C_2}{g_{m1}} + s \frac{C_2}{g_{m2}} + 1 \quad \underline{V_1} = \underline{V_2} \cdot \left(\frac{s C_2}{g_{m2}} \right)$$

LP

BP

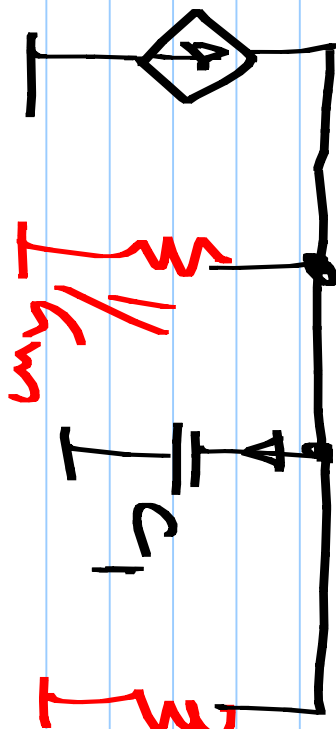


$$\frac{V_1}{I_{\text{test}}} = \frac{S C_2}{g_m^2}$$



$V_2 = \frac{g_{m1} \cdot V_1}{S C_2}$

V_2



$$Z_2 = \frac{R}{1 + j\omega RC}$$

$G_m \cdot V_1$

