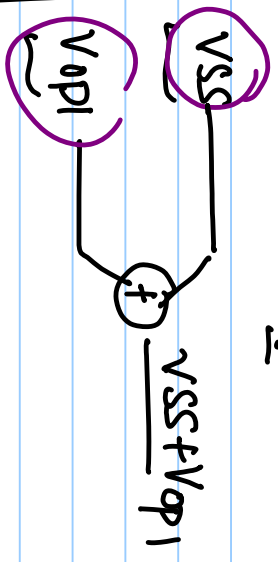
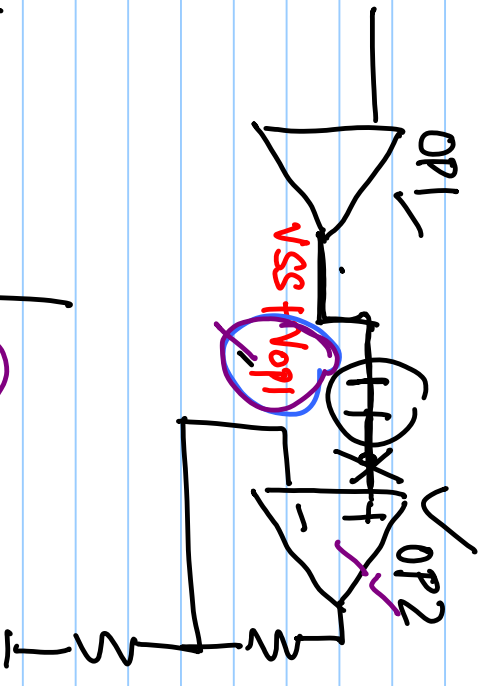
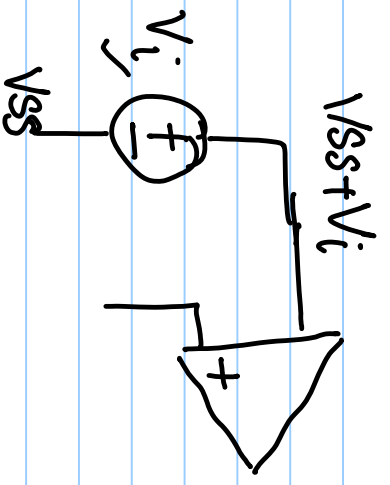
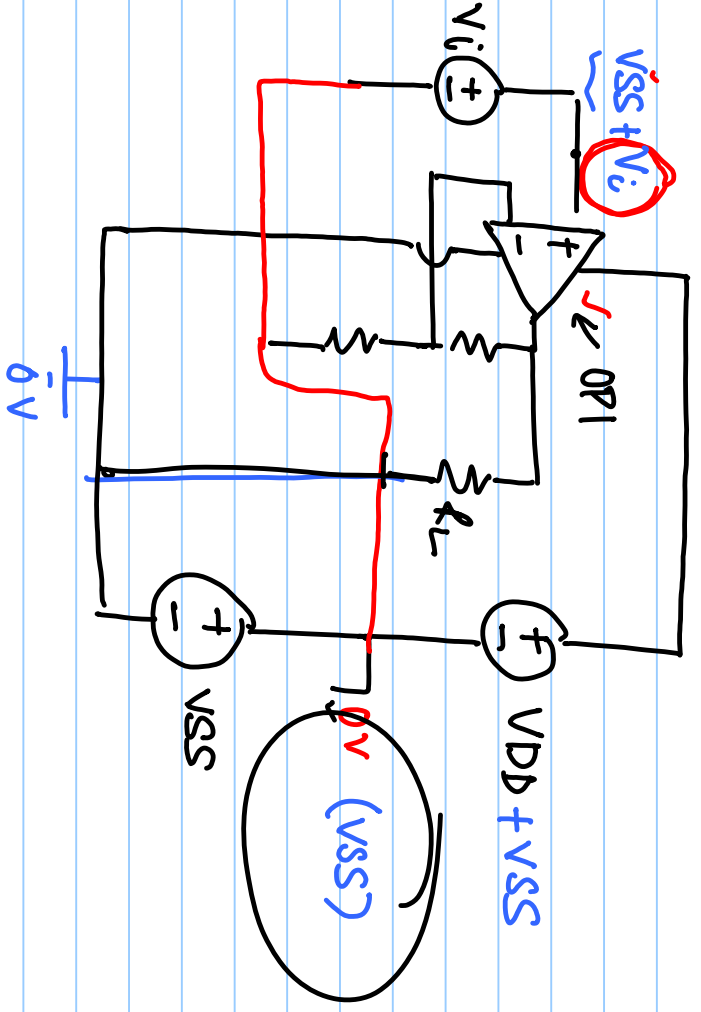
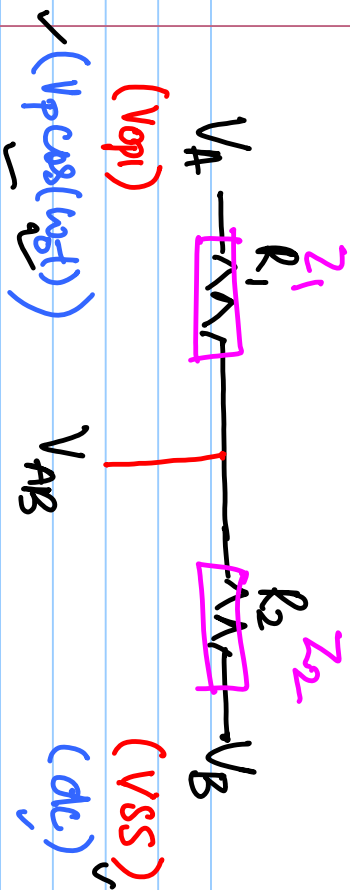


# Lecture # 11



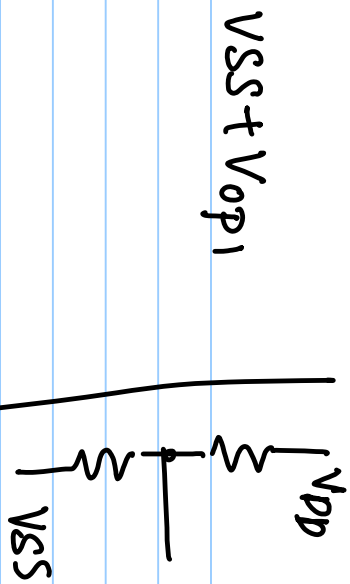


$$V_{AB} = \frac{R_2}{R_1 + R_2} V_A + \frac{R_1}{R_1 + R_2} V_B$$

$$\propto V_{op1} + \beta V_{SS}$$

$$\approx \frac{R_2}{R_1} V_A + V_B \quad (V_{SS})$$

$R_1 \gg R_2$



$$V_{AB} = \frac{Z_2}{Z_2 + Z_1} V_A + \frac{Z_1}{Z_1 + Z_2} V_B$$

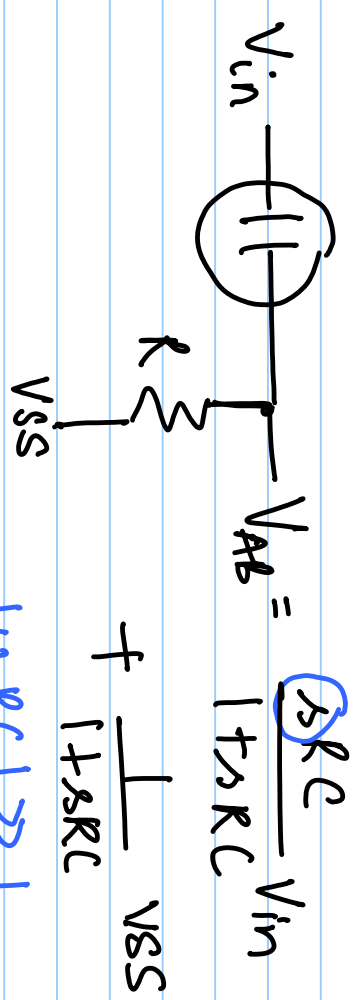
$$|Z_1(j\omega_0)| \gg |Z_2(j\omega_0)| \quad \checkmark$$

$$|Z_2(j\omega_0)| \gg |Z_1(j\omega_0)| \quad \checkmark$$

$z_1$	$R$	$z_2$	$R$	$V_A$	$V_B$
	$C$		$R$	X	X
	$R$		$L$		

$$|sL|_{s=0} = 0$$

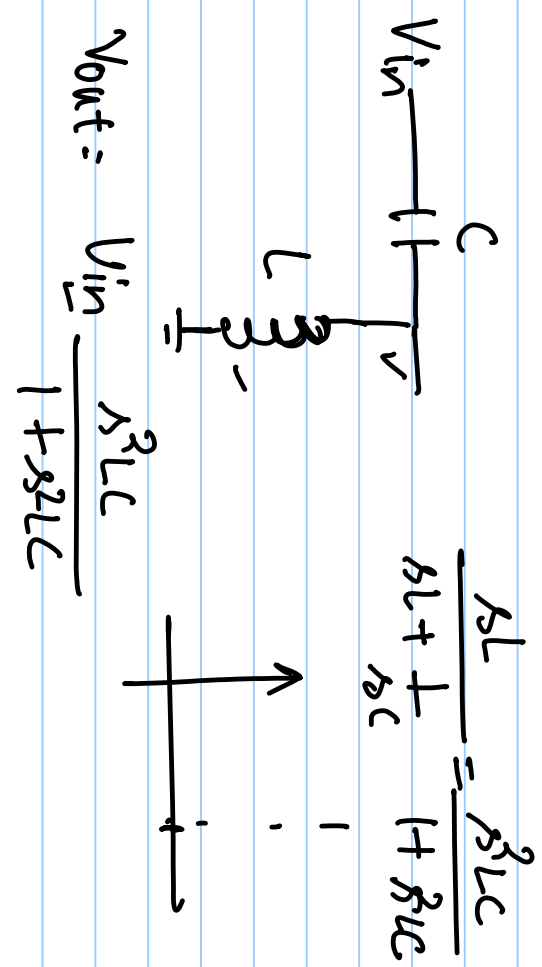
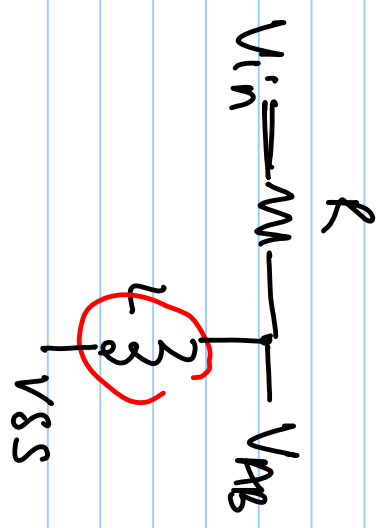
$$\left| \frac{1}{sC} \right|_{s=0} \rightarrow \infty$$



$$V_{AB} = \frac{sRC}{1+sRC} V_{in}$$

$$+ \frac{1}{1+sRC} V_{SS}$$

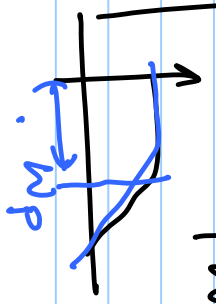
$|sRC| \gg 1$   
 $\downarrow$   
 WP

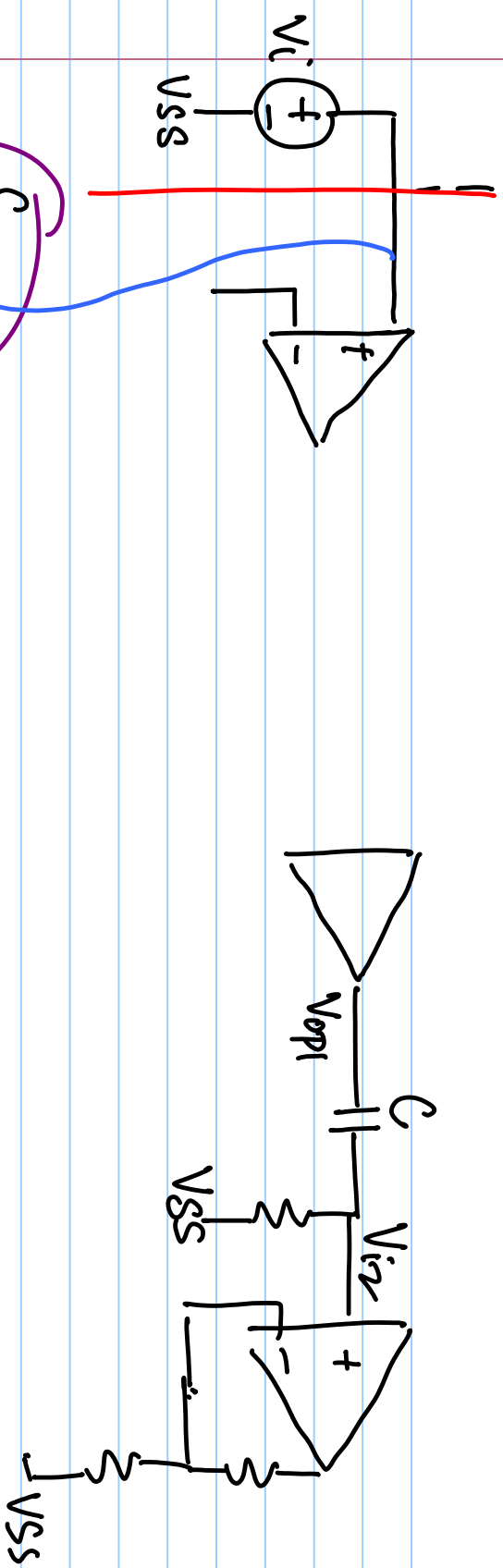


$$V_{out} = V_{in} \frac{s^2LC}{1+s^2LC}$$

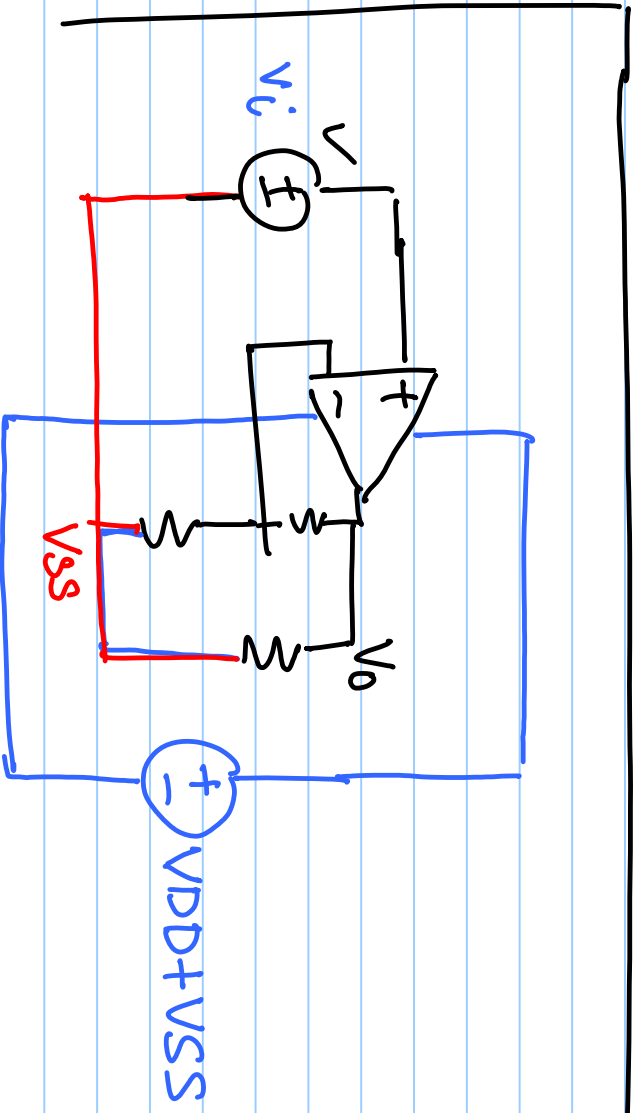
$|s^2LC| \gg 1$

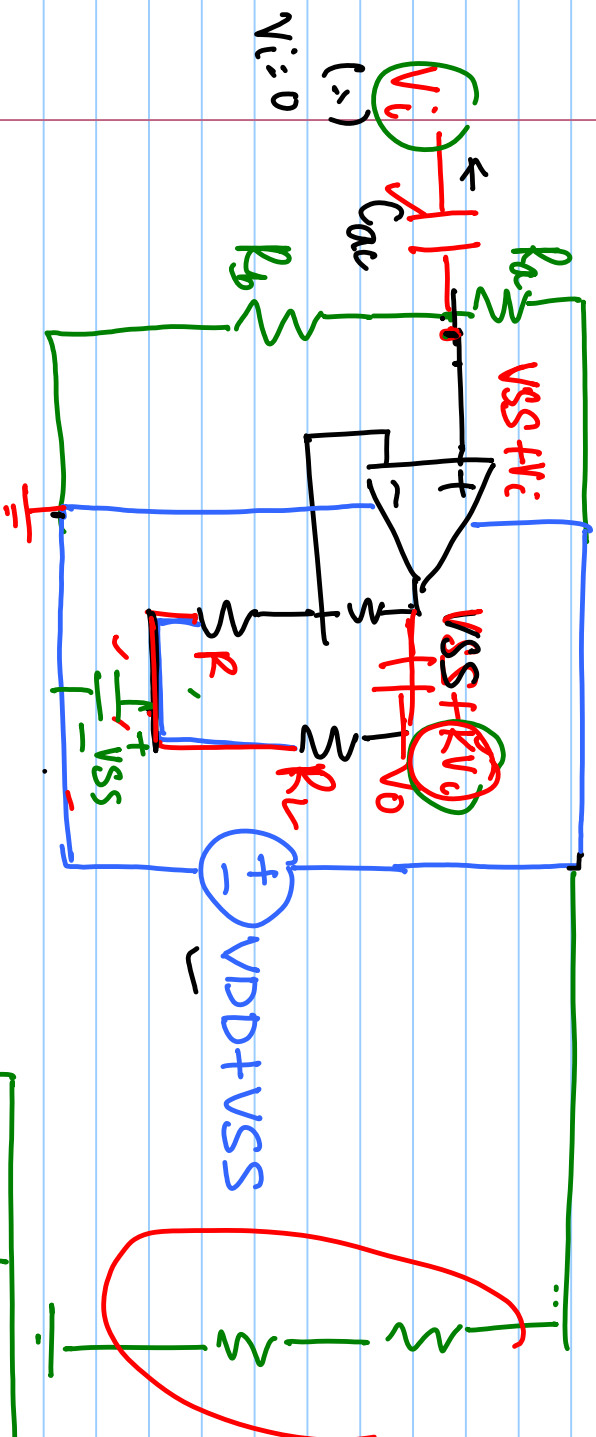
$$\frac{sL}{sL + \frac{1}{sC}} = \frac{s^2LC}{1+s^2LC}$$





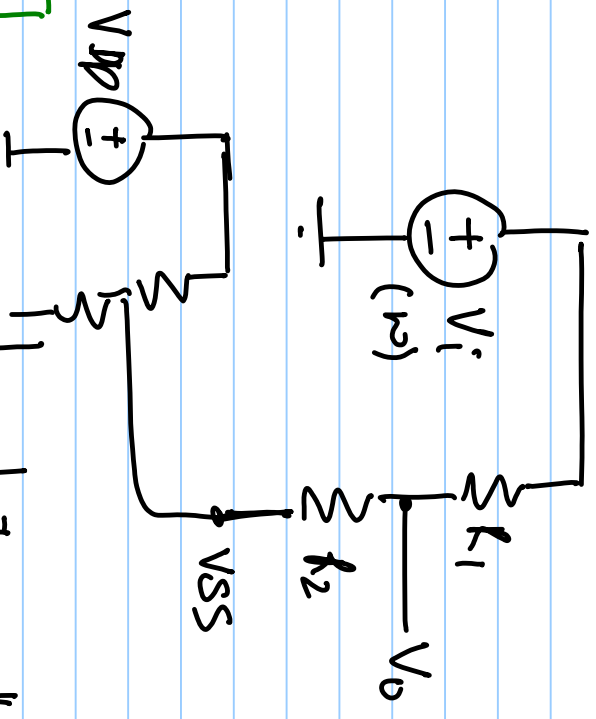
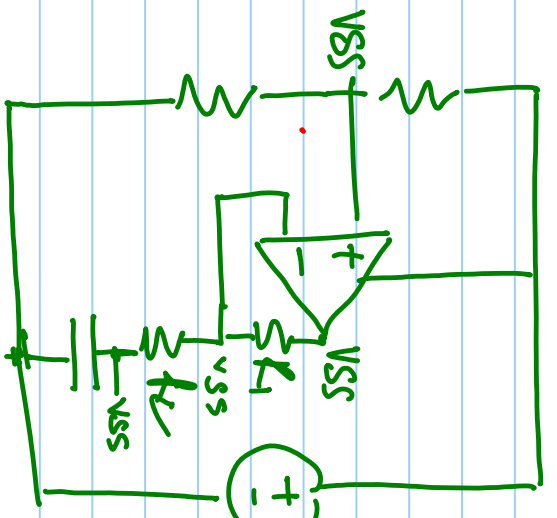
AC-coupling.



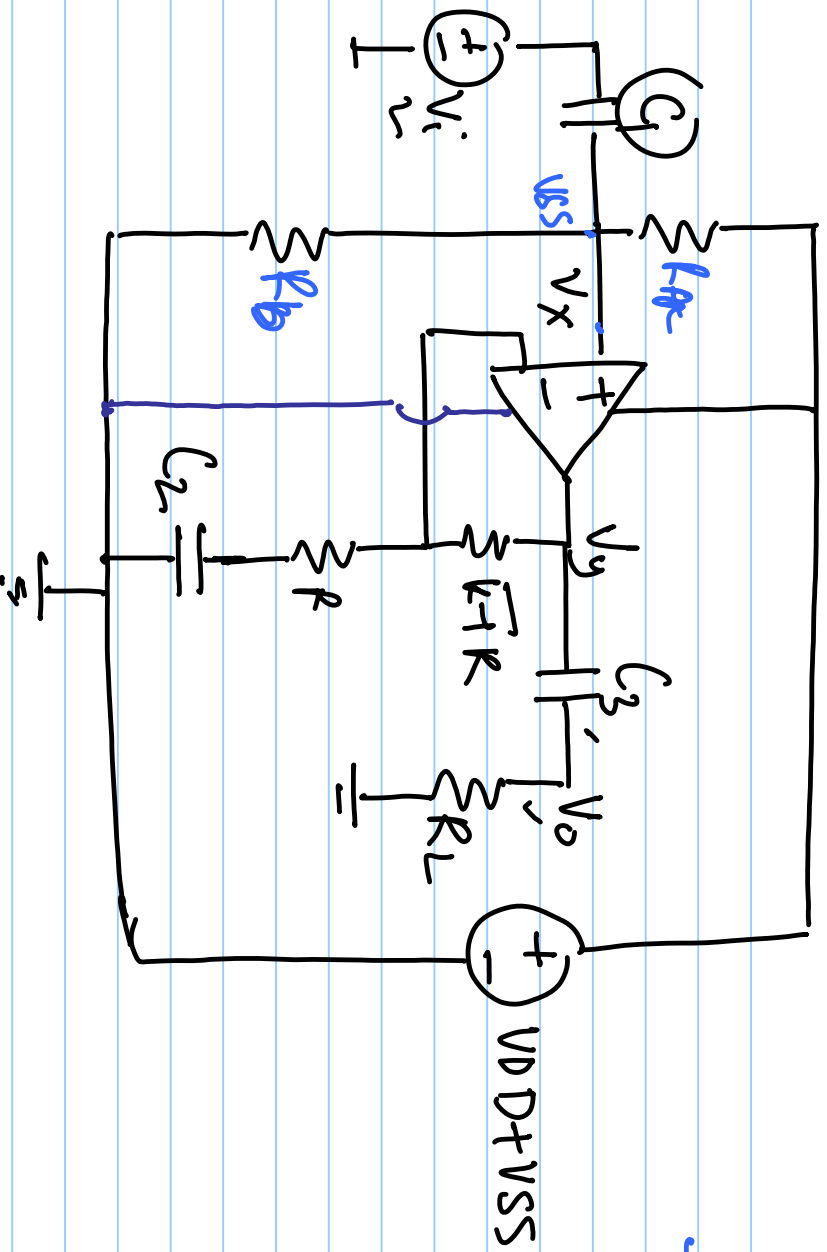


$$\frac{R_b}{R_b + R_a} (V_{DD} + V_{SS}) = V_{SS}$$

$$\frac{R_a}{R_b} = \frac{V_{DD}}{V_{SS}}$$



$$\Delta V = \frac{\Delta Q}{C}$$



$$V_o = R V_i$$

