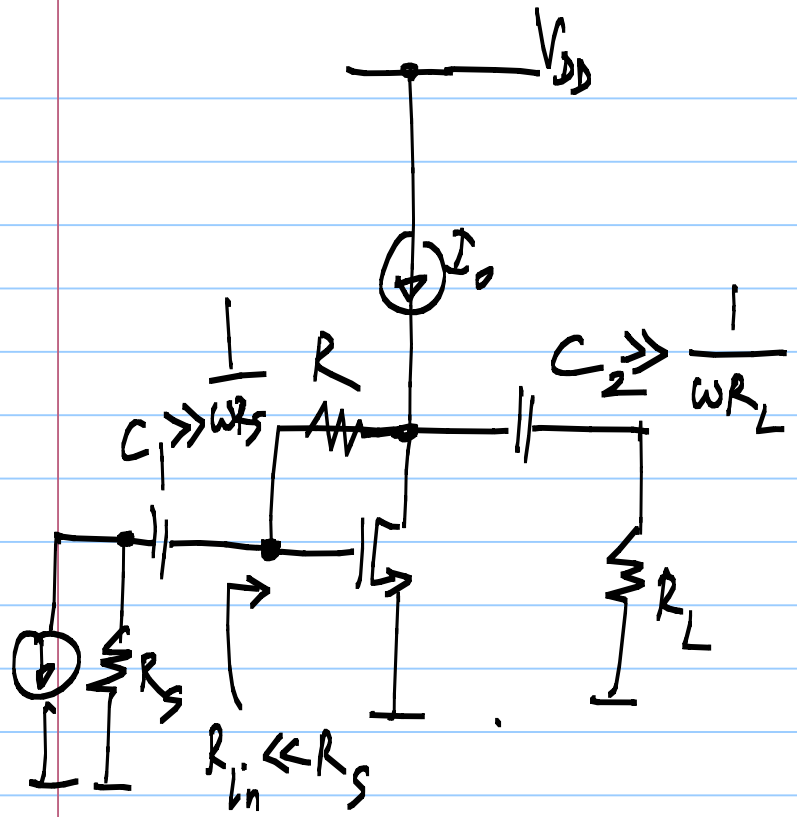
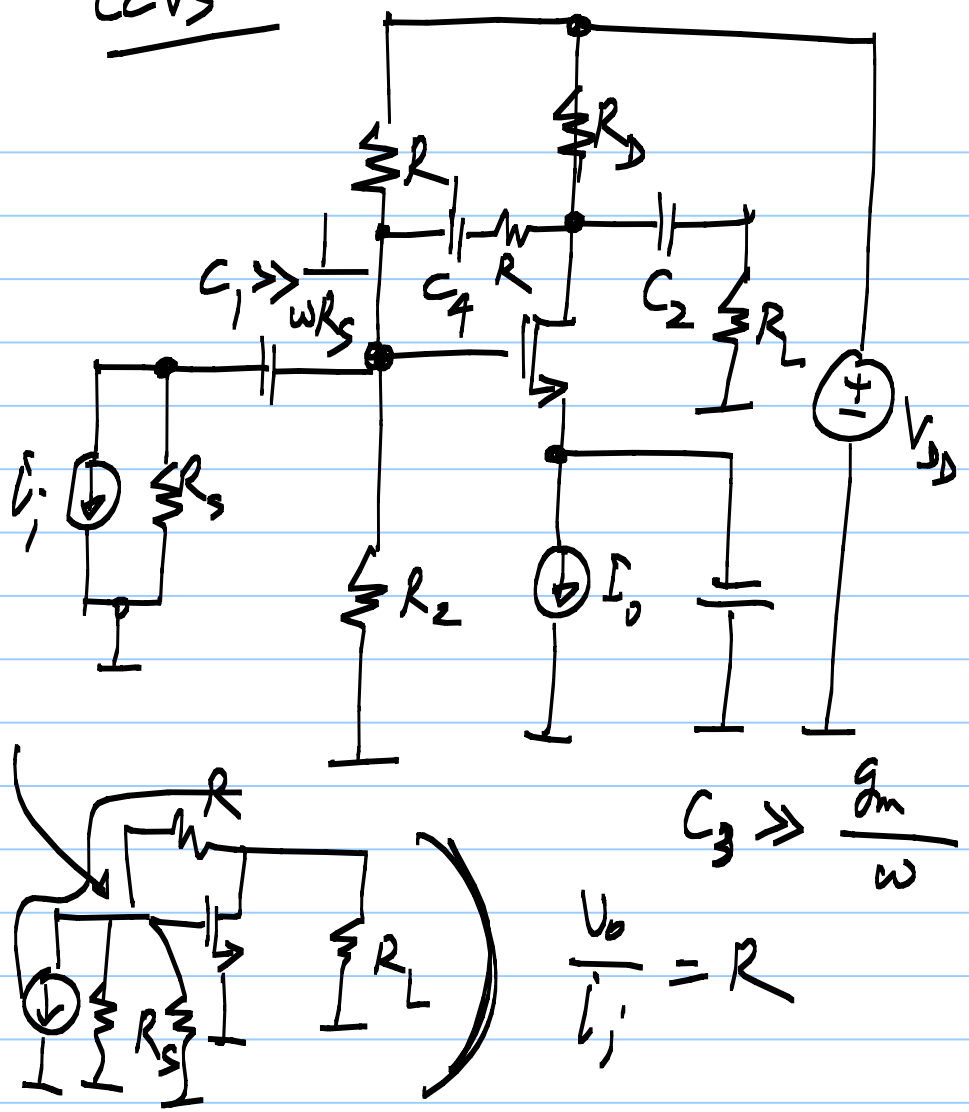
CCVS using a transistor.



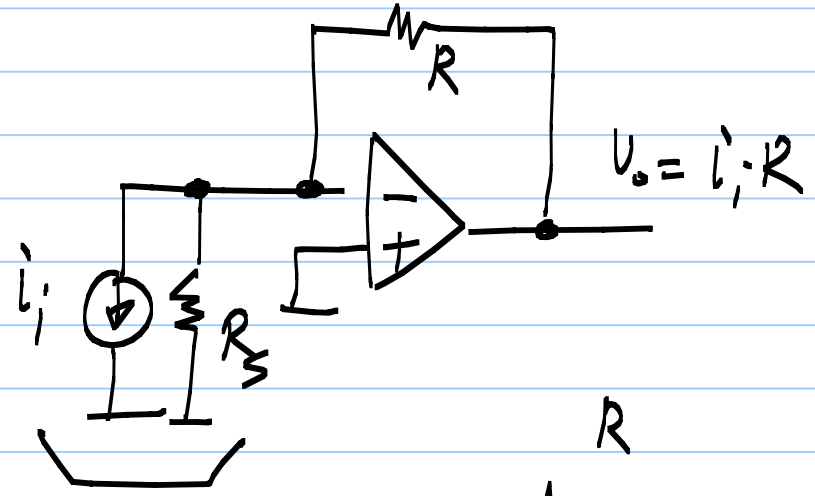
CCVS

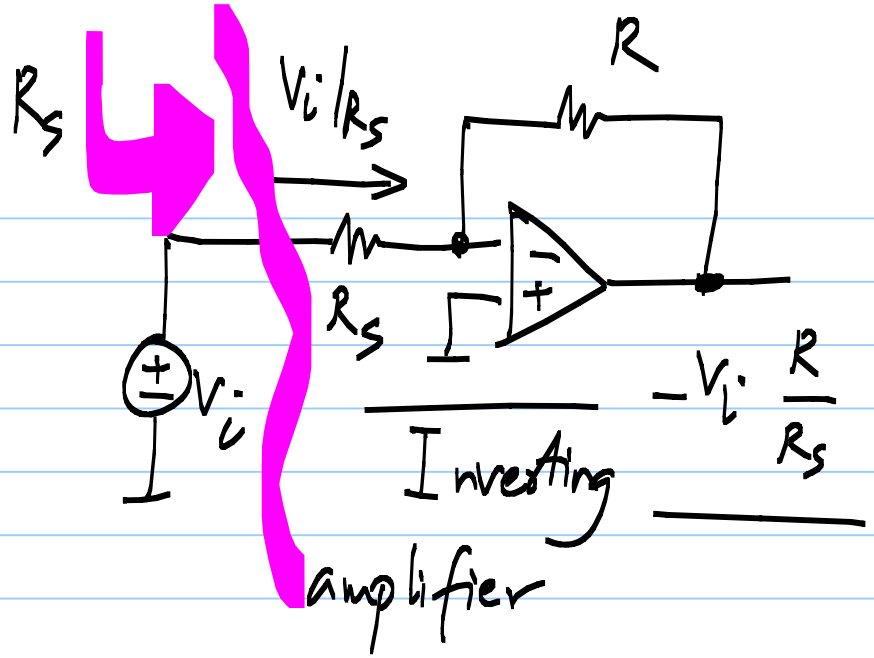
CCVS

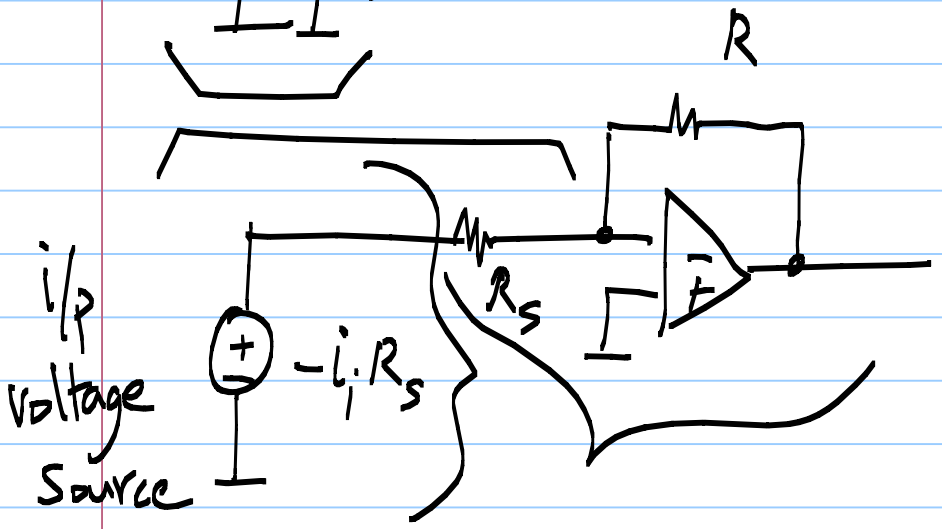


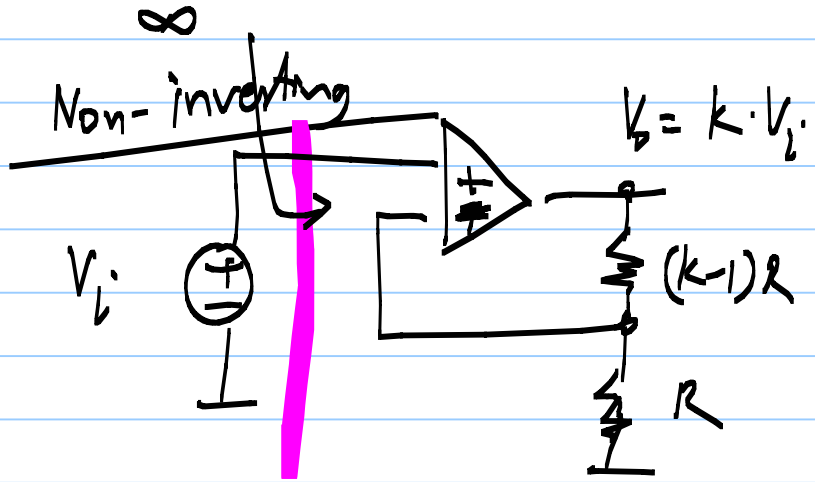
$$\frac{v_o}{i_i} = R$$

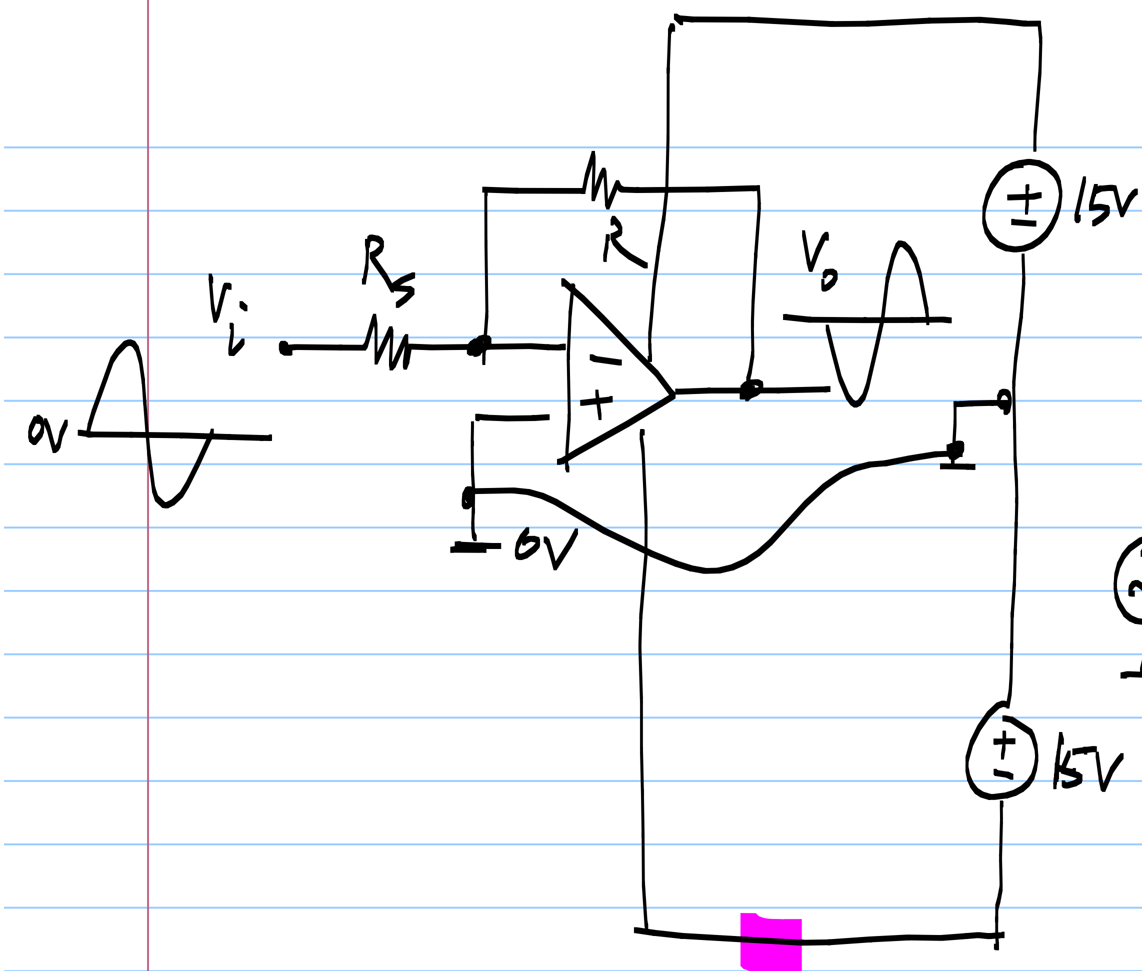
CCVS using an opamp



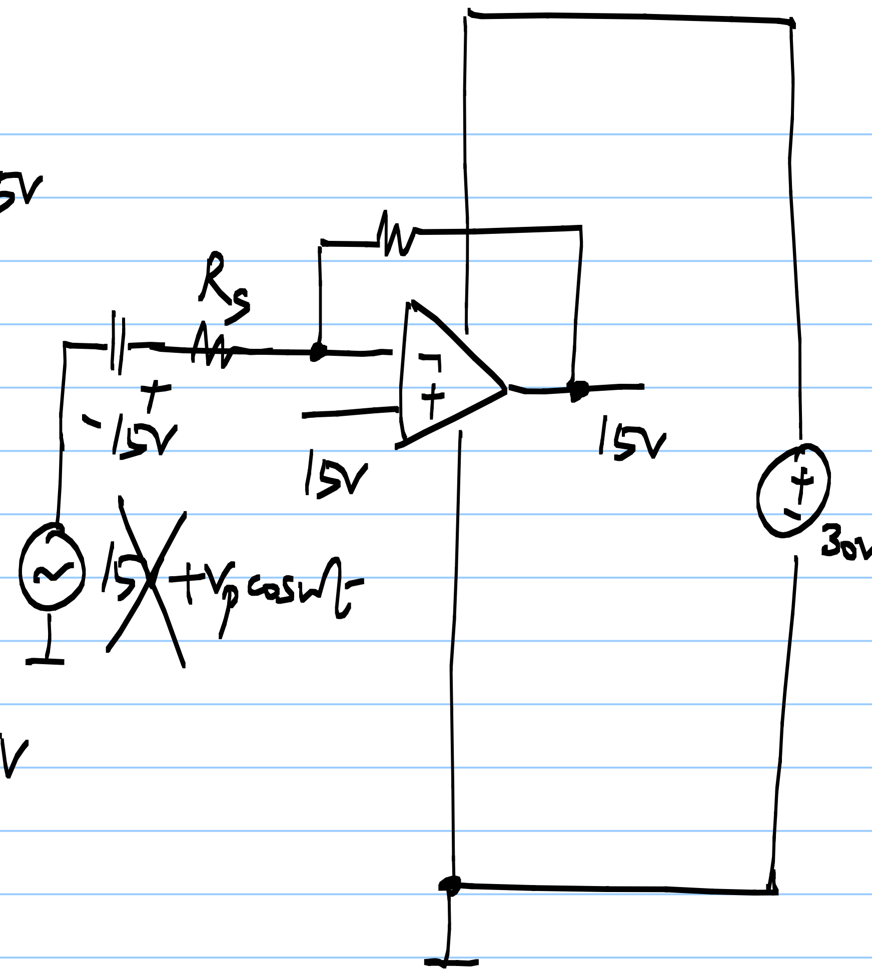




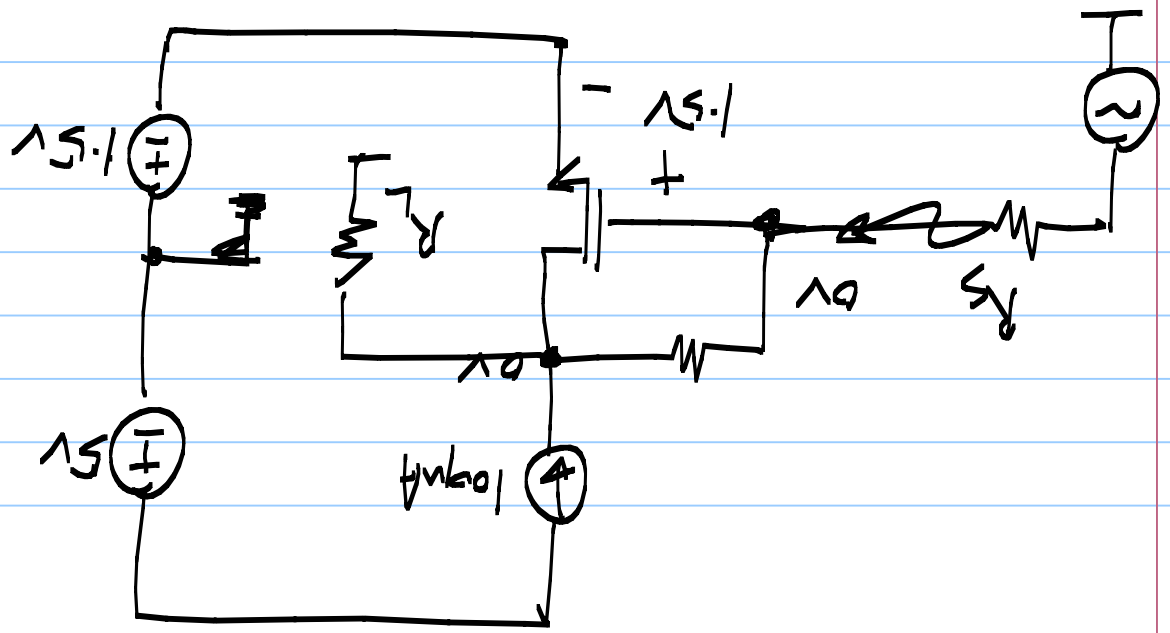


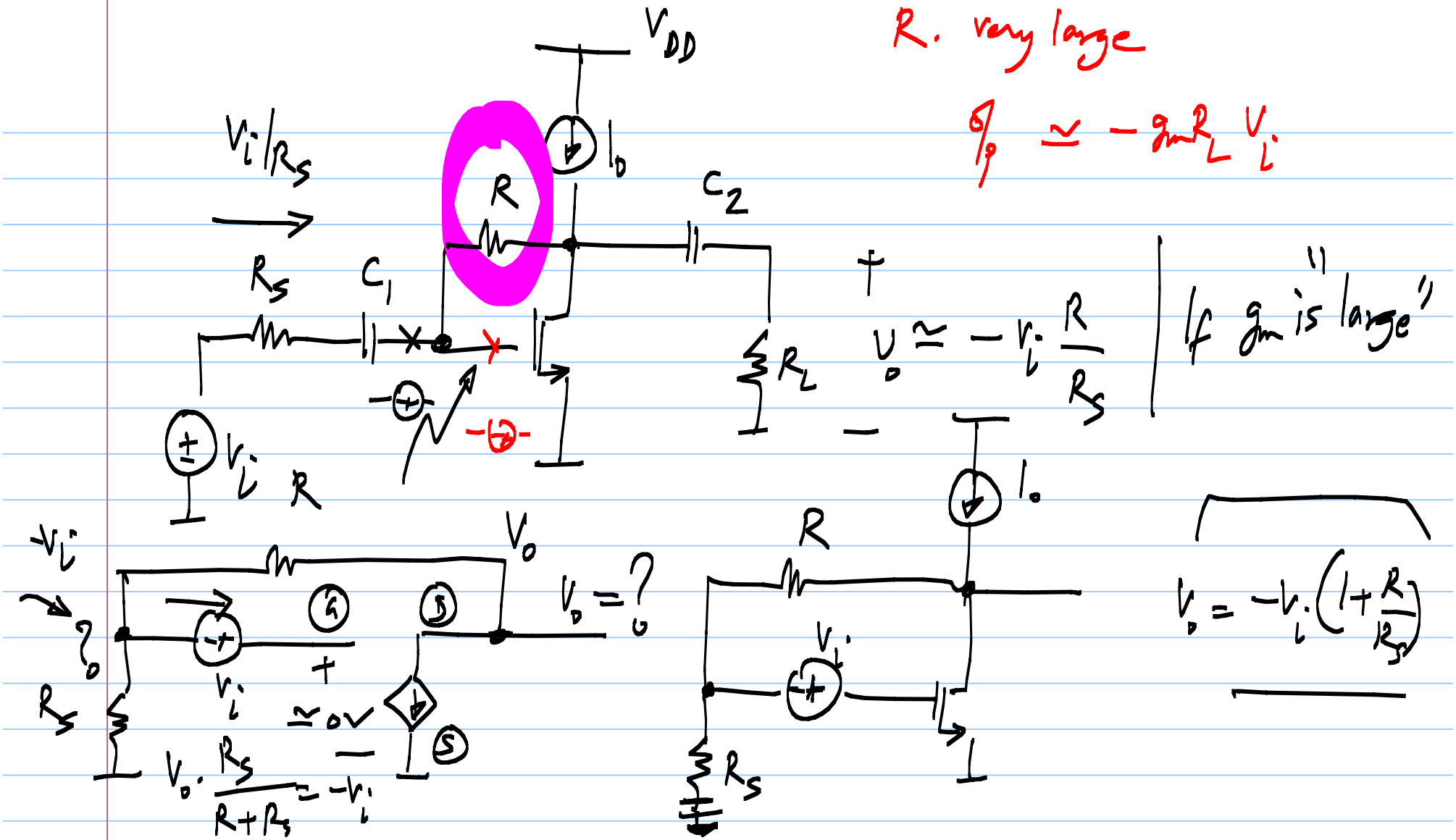


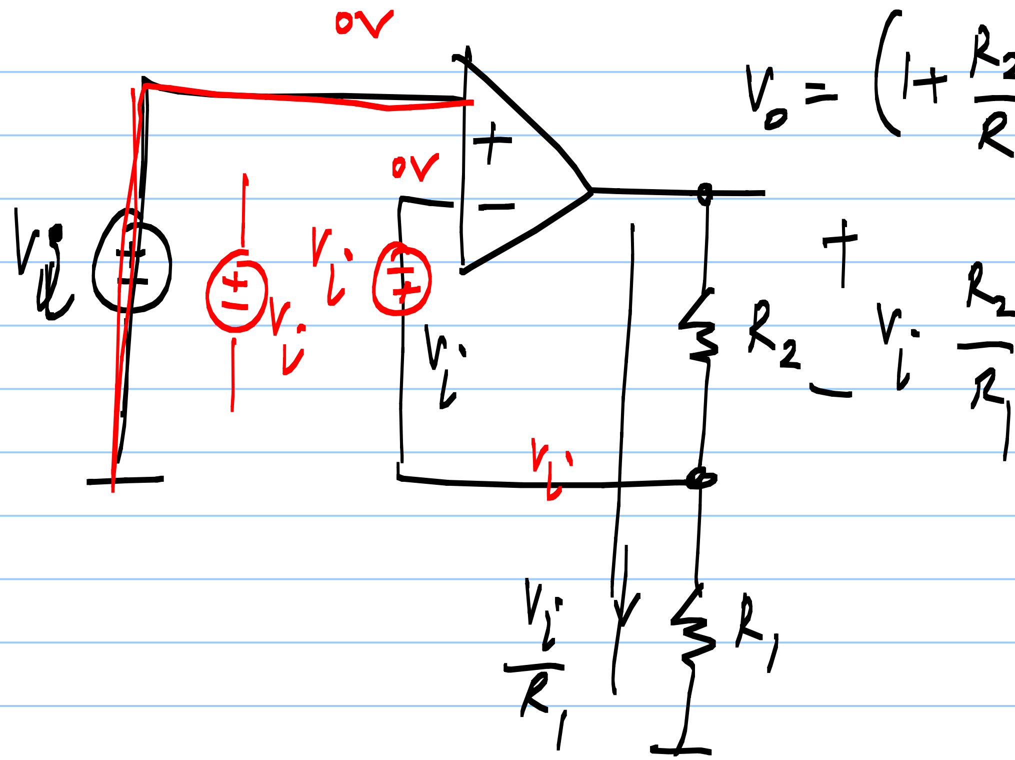
0V
V_i
R_s
R
V_o
0V
15V
15V



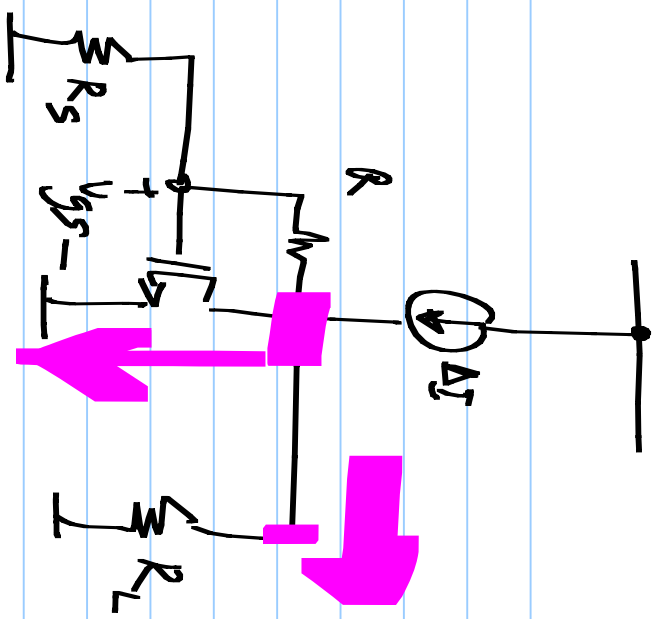
R_s
15V
15V
15V
15V
30V
$+V_p\cos\omega t$




R. very large
$A_v \simeq -g_m R_L$
V_{DD}
I_D
R
C_2
C_1
R_S
R_L
V_i
$V_o \simeq -V_i \frac{R}{R_S}$
If g_m is "large"
$V_o = ?$
$V_o \cdot \frac{R_S}{R+R_S} = -V_i$
$V_o = -V_i \left(1 + \frac{R}{R_S}\right)$



$$v_o = \left(1 + \frac{R_2}{R_1}\right) v_i$$


R_S
v_{SS}
+
−
R
I_1
R_L