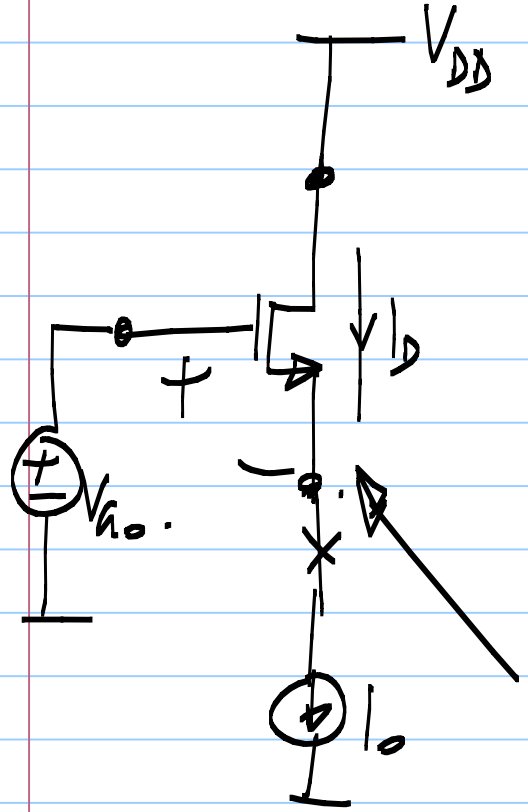
Sense I_D @ drain; feedback to the gate ✓

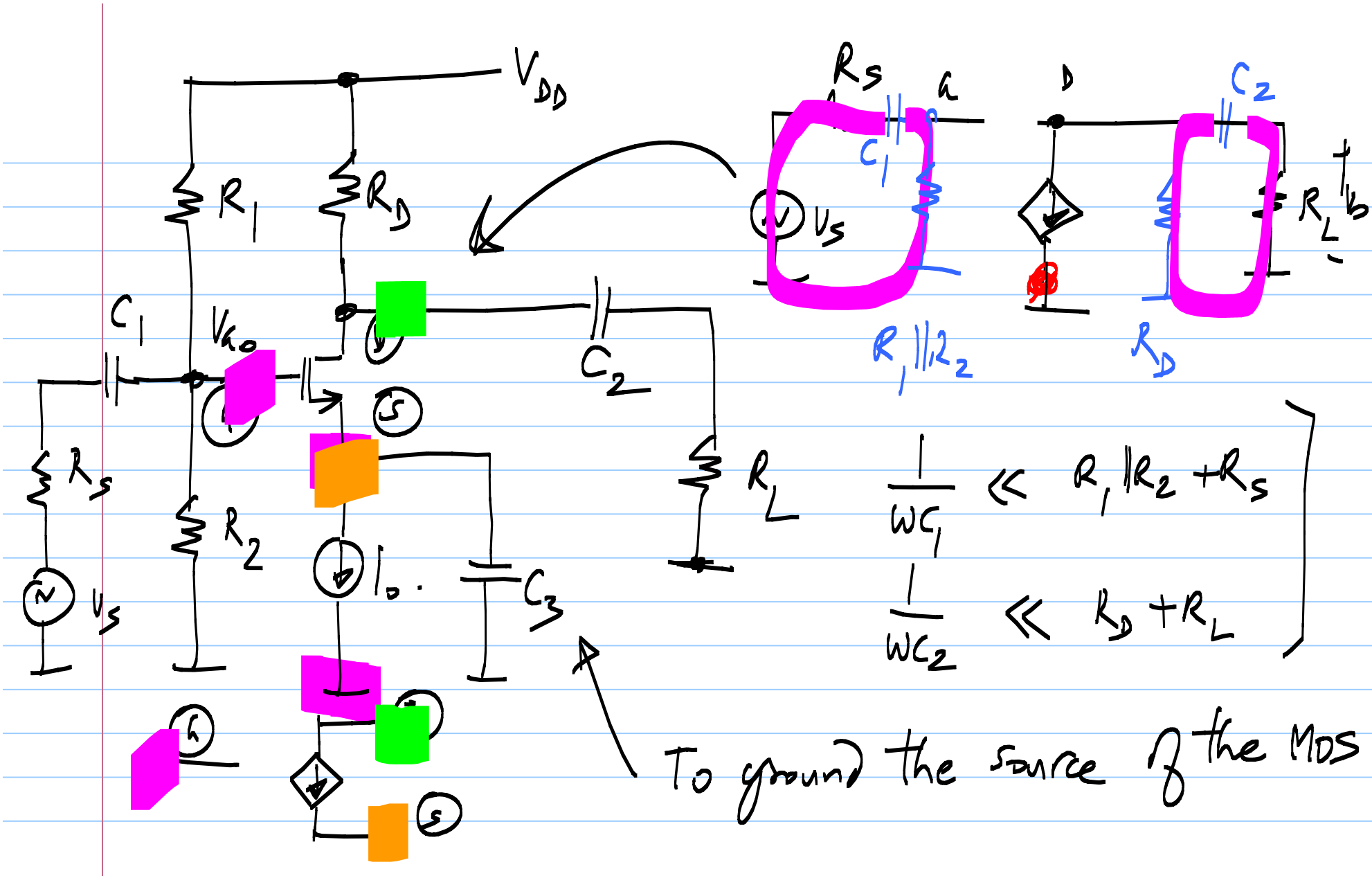
Sense I_D @ source; feedback to the source

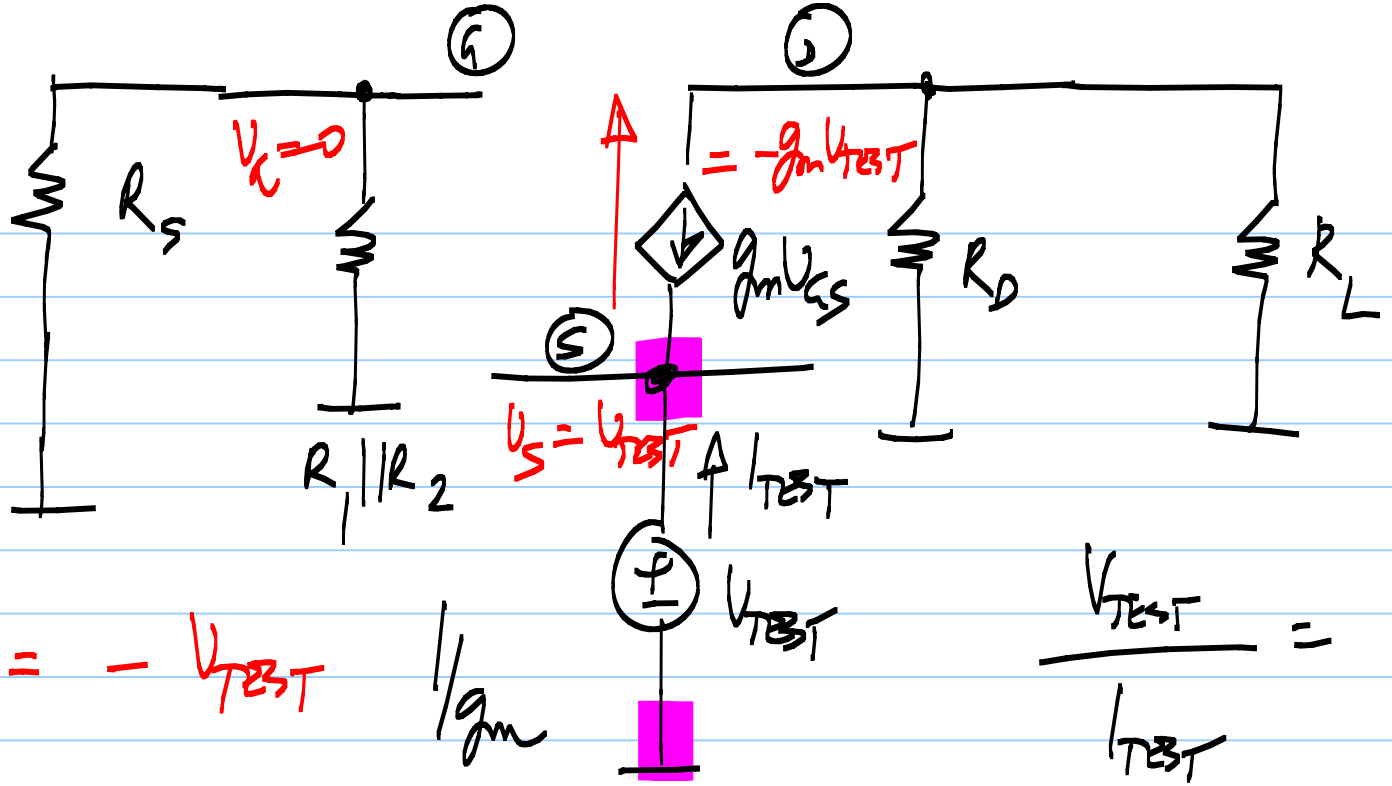


$$\begin{cases} I_D < I_0 : V_S \text{ must decrease} \\ \left(V_{GS} = V_{G_0} - V_S \text{ must } \uparrow\right) \end{cases}$$

If $I_D < I_0$, V_S will decrease

$$V_{G_0} - V_T - \sqrt{\frac{2I_0}{\mu C_{ox} W/L}}$$


V_{DD}
R_1
R_D
C_1
V_{ho}
C_2
R_S
R_2
R_L
V_s
I_o
C_3
R_S
a
C_1
V_s
$R_1 \| R_2$
D
C_2
R_L
R_D
$\frac{1}{\omega C_1} \ll R_1 \| R_2 + R_S$
$\frac{1}{\omega C_2} \ll R_D + R_L$
To ground the source of the MOS

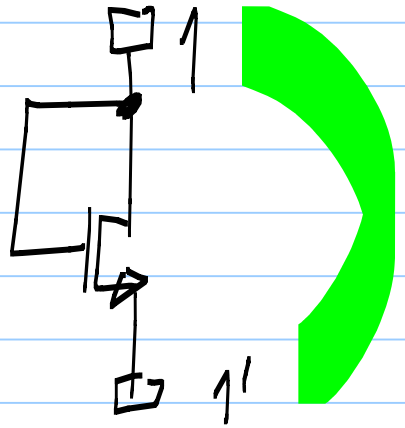


$$V_{GS} = -V_{TEST}$$

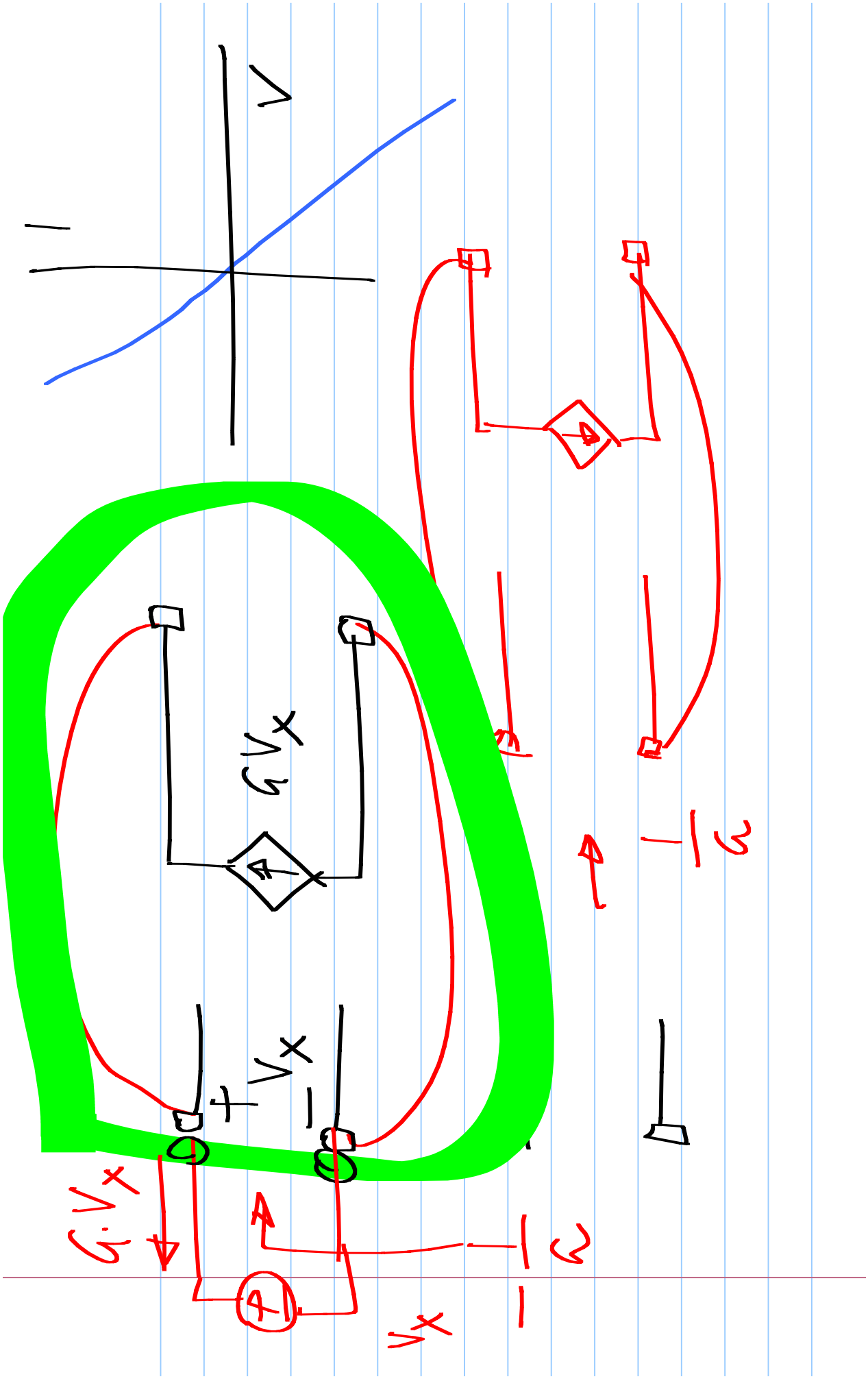
$$1/g_m$$

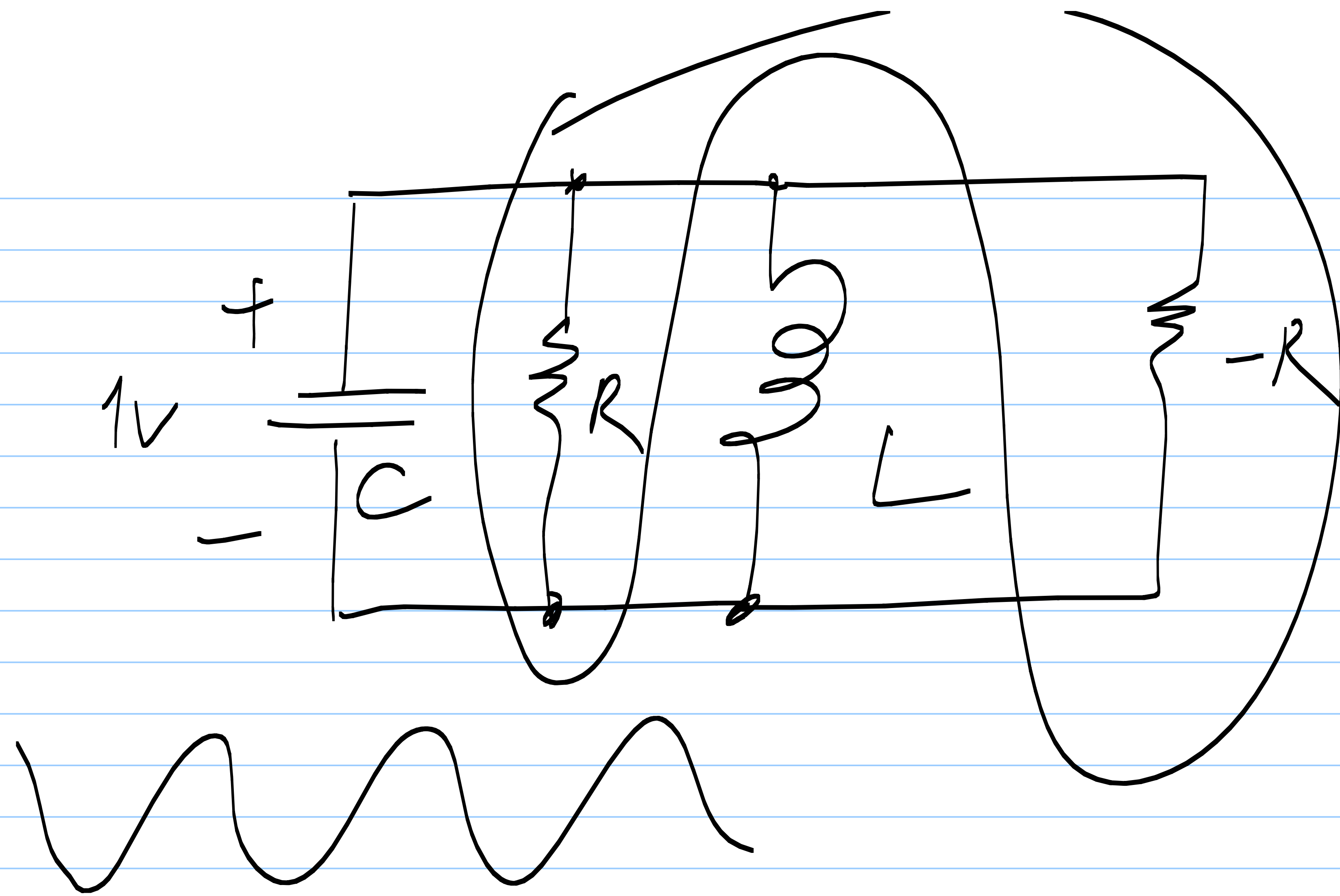
$$\frac{V_{TEST}}{I_{TEST}} = \frac{V_{TEST}}{g_m \cdot V_{TEST}}$$

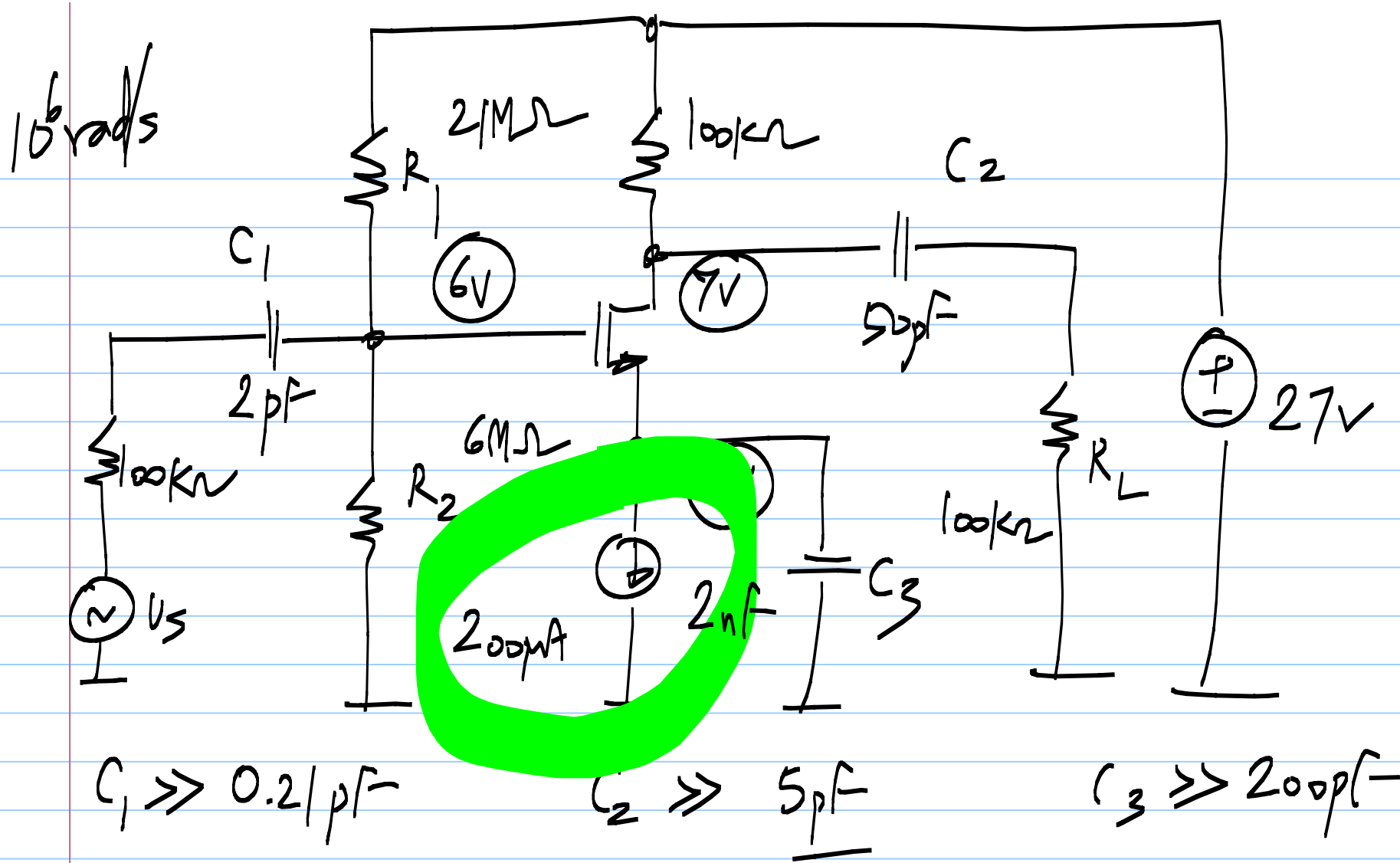
$$= \left(\frac{1}{g_m}\right)$$

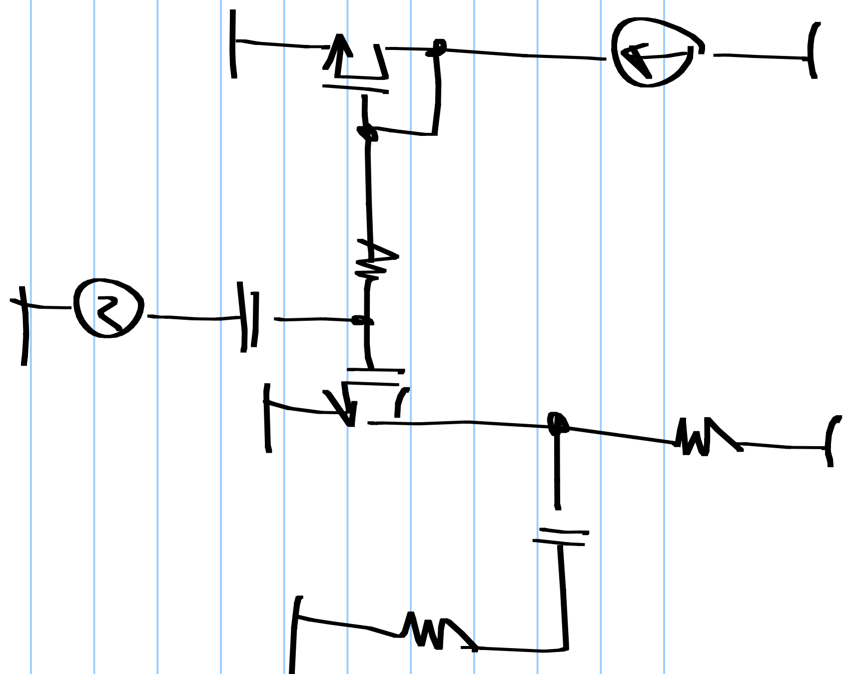


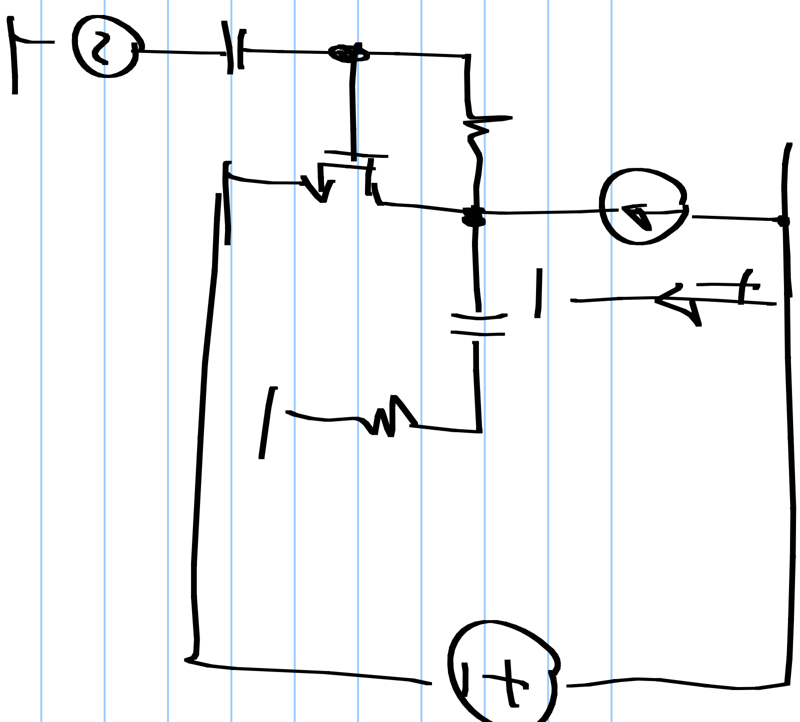
$$\frac{1}{\omega C_3} \ll \frac{1}{g_m}$$

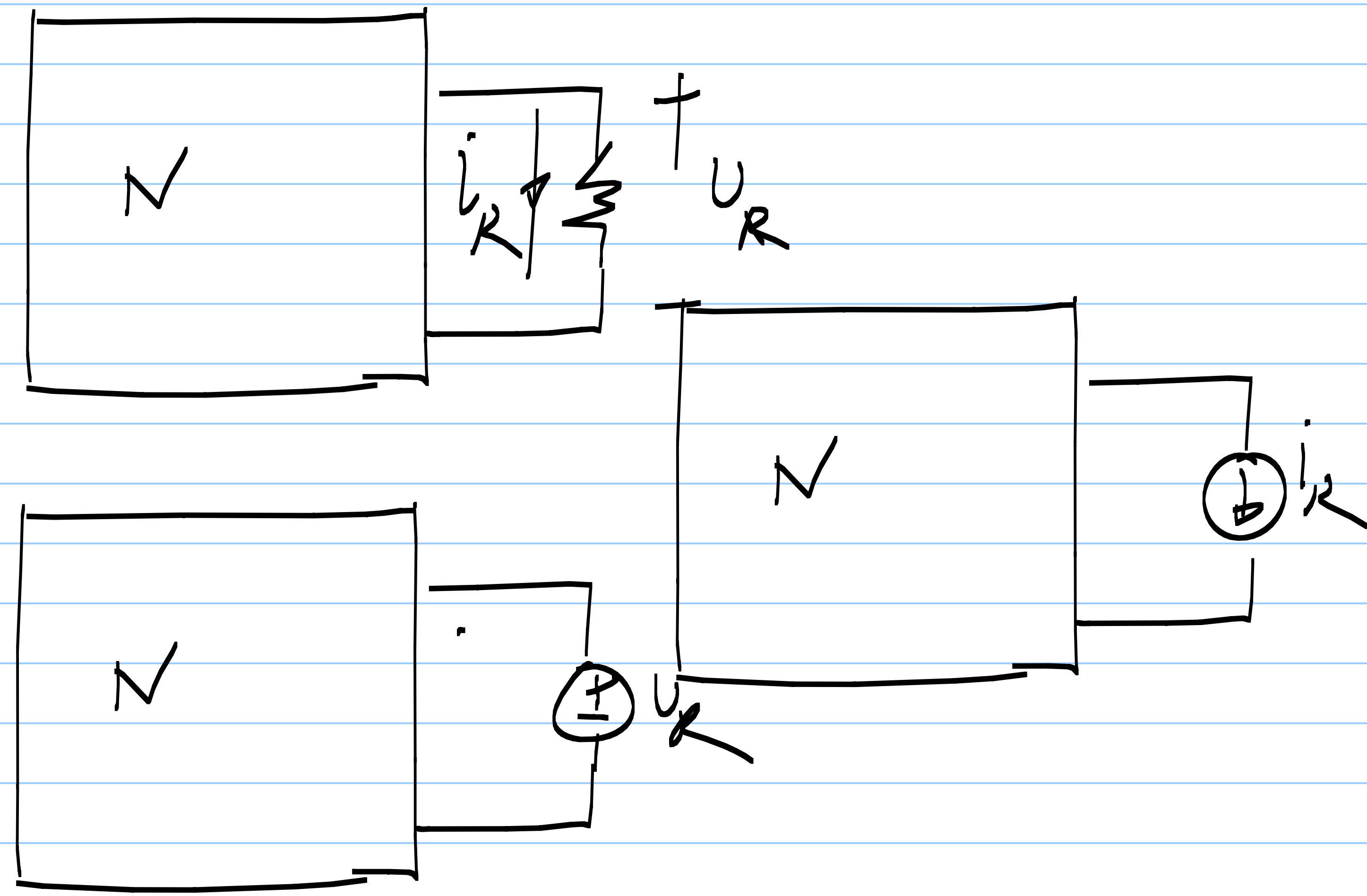

V
I
G Vx
+
-
Vx
G Vx
Vx


+
1V
−
C
R
L
-R


10^6 rad/s
2MΩ
100kΩ
R_1
C_2
C_1
6V
7V
50pF
2pF
100kΩ
6MΩ
R_2
R_L
27V
100kΩ
V_S
200μA
2nF
C_3
$C_1 \gg 0.2$ pF
$C_2 \gg 5$ pF
$C_3 \gg 200$ pF







N
i_R
+
u_R
N
i_R
N
u_R