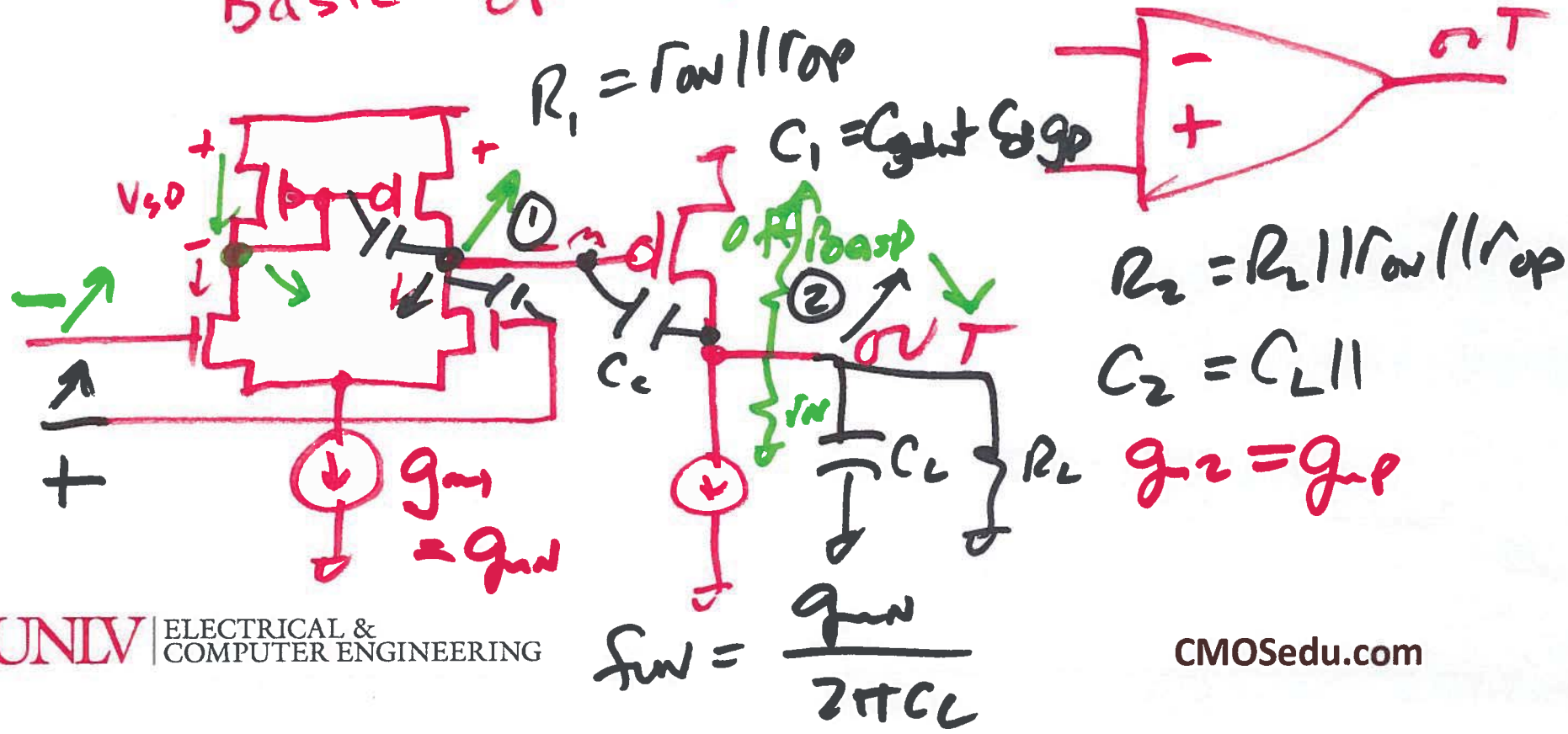
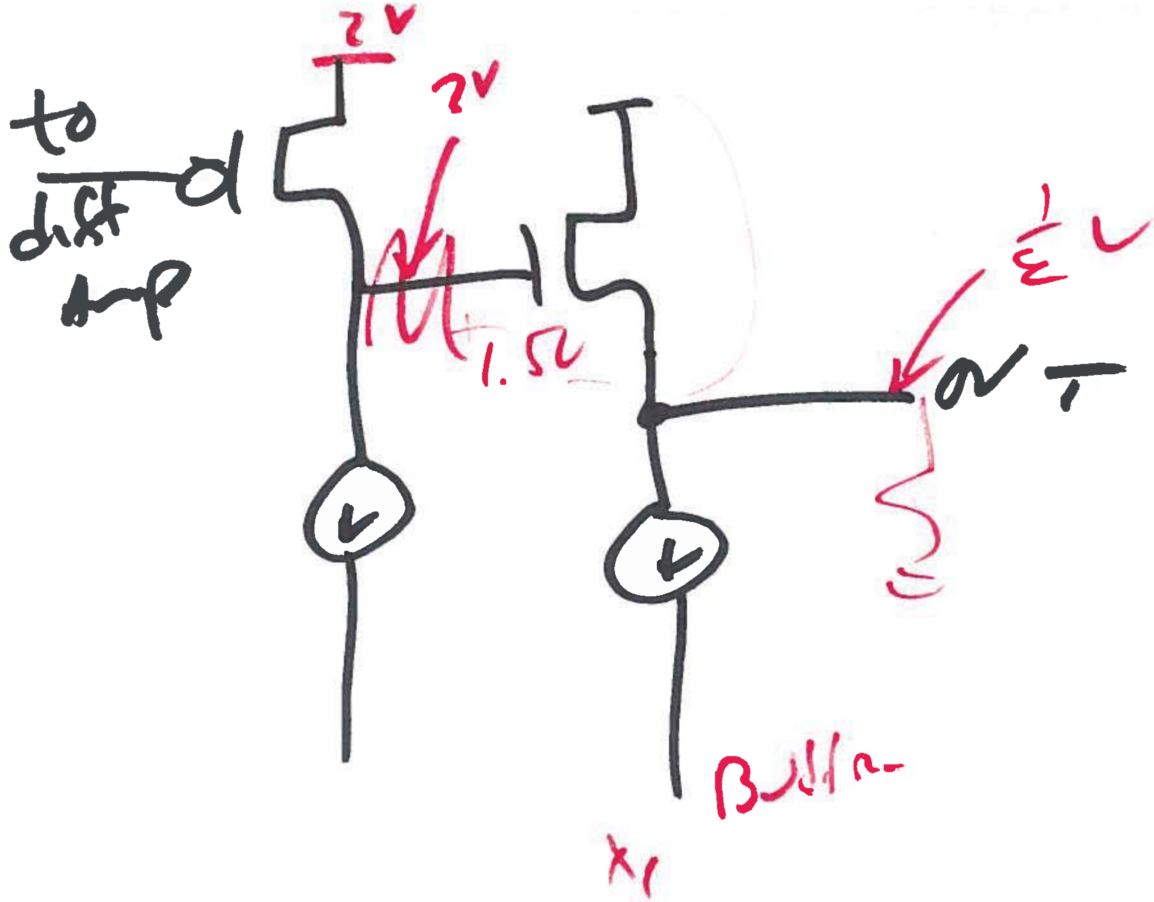
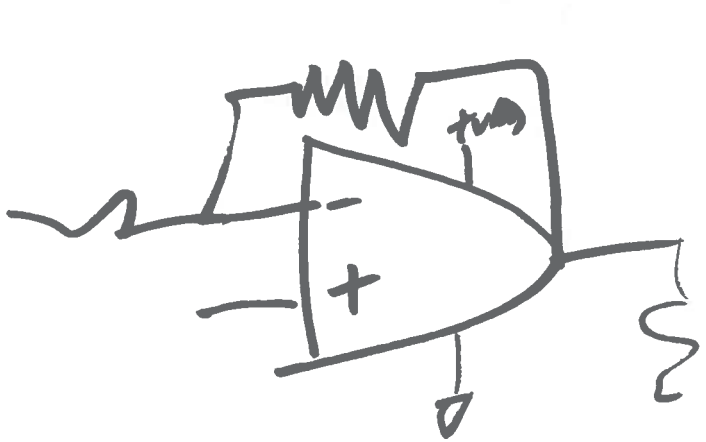
EE 420 / ECG 620
Analog IC Design

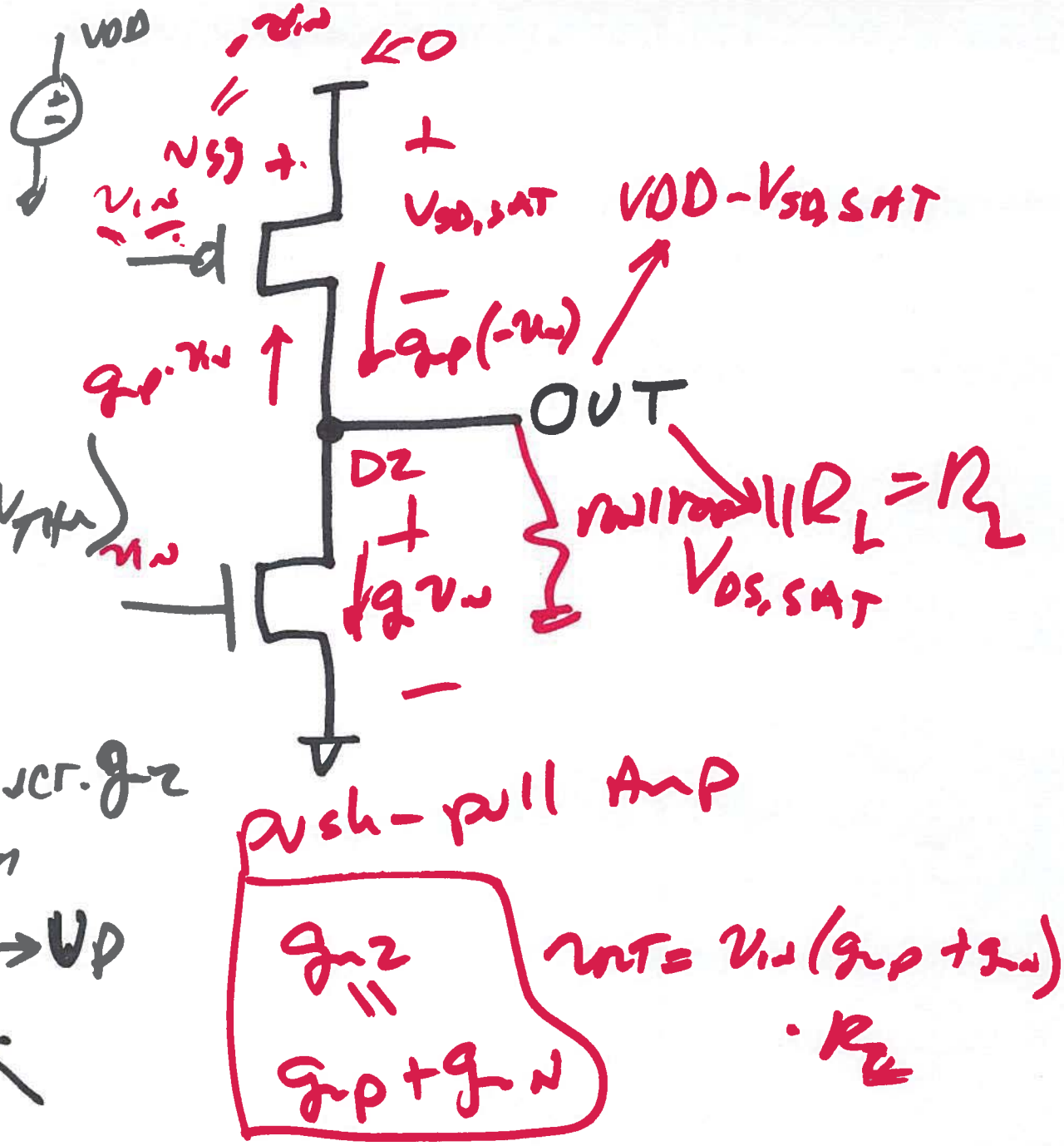
Lecture 21
April 5, 2017





2)





$$g_m = KP \cdot \frac{W}{L} \cdot (V_{GS} - V_{THN})$$

$$g_m \cdot m = KP \cdot \frac{W}{L} \cdot m \cdot V_{OVN}$$

$M = 12$

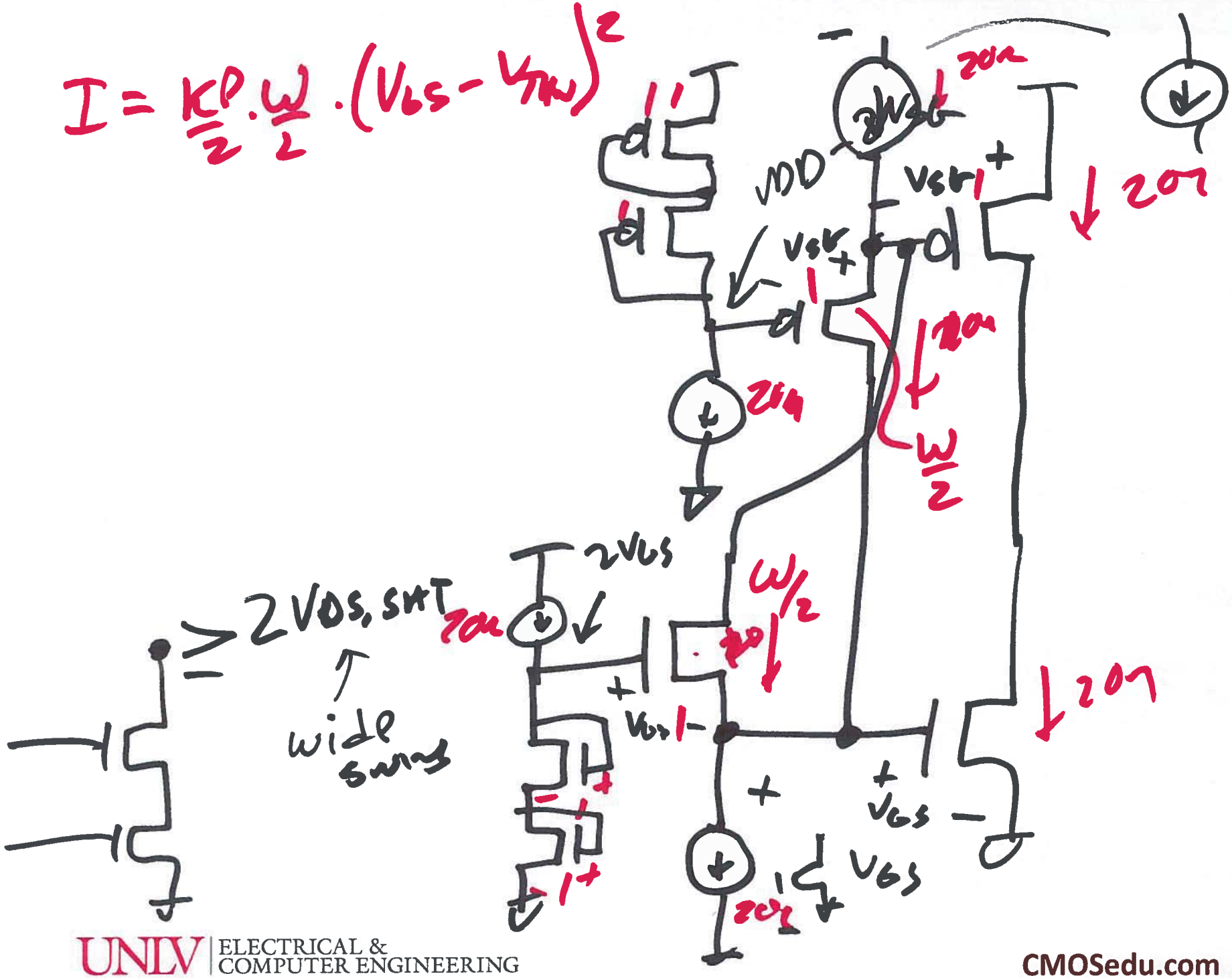
incr. g_2

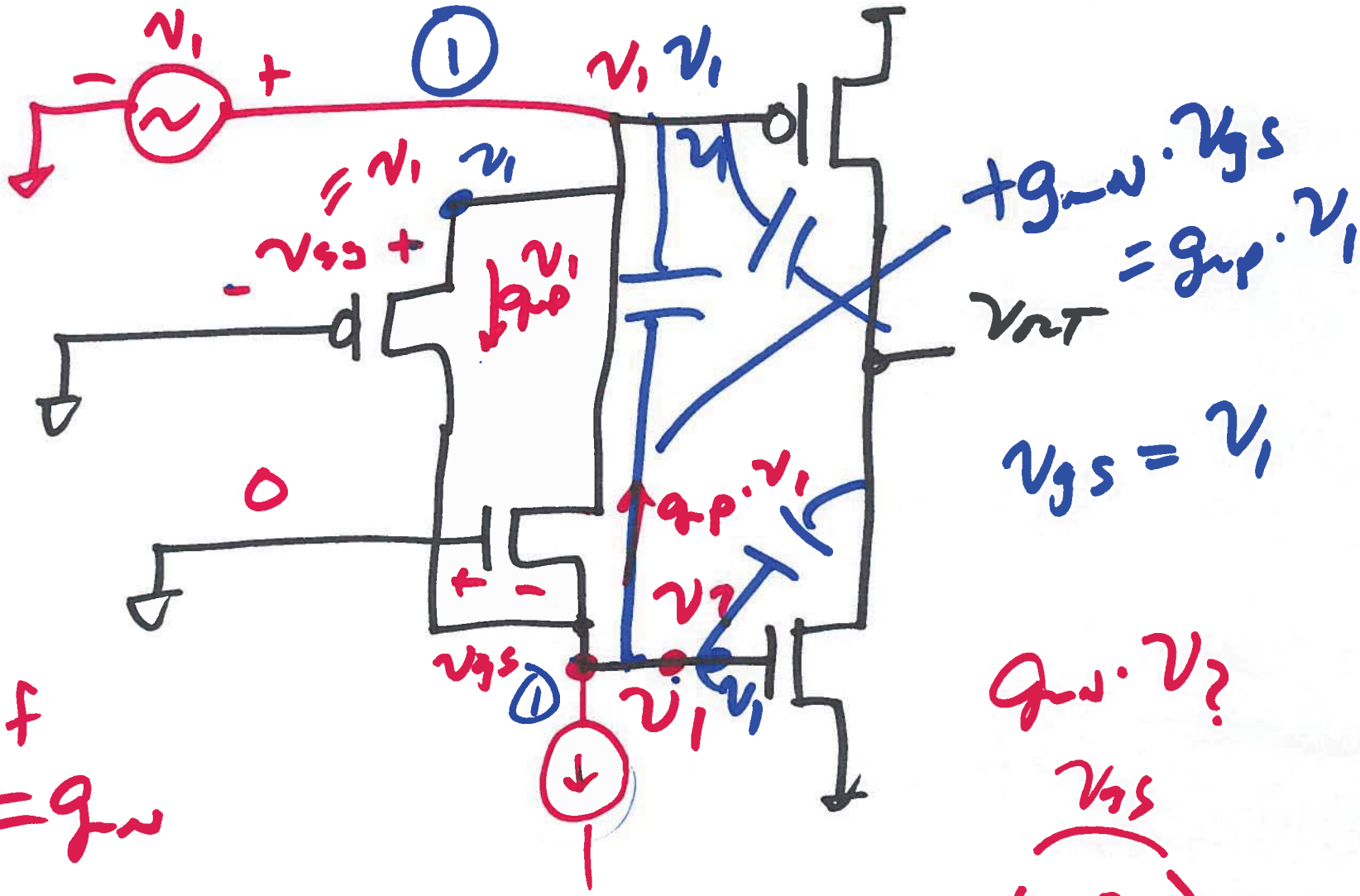
$f_2 \rightarrow Up$

$g_{m2} = g_{mp} + g_{mN}$

$v_{out} = v_{in}(g_{mp} + g_{mN}) \cdot R_L$

$$I = \frac{K_p}{2} \cdot \frac{W}{L} \cdot (V_{GS} - V_{TH})^2$$





if

$g_{mp} = g_{mN}$

$v_1 = v_1$

$v_2 = -v_{gs} \Rightarrow g_{mN} \cdot (0 - v_2) = g_{mp} \cdot v_1$

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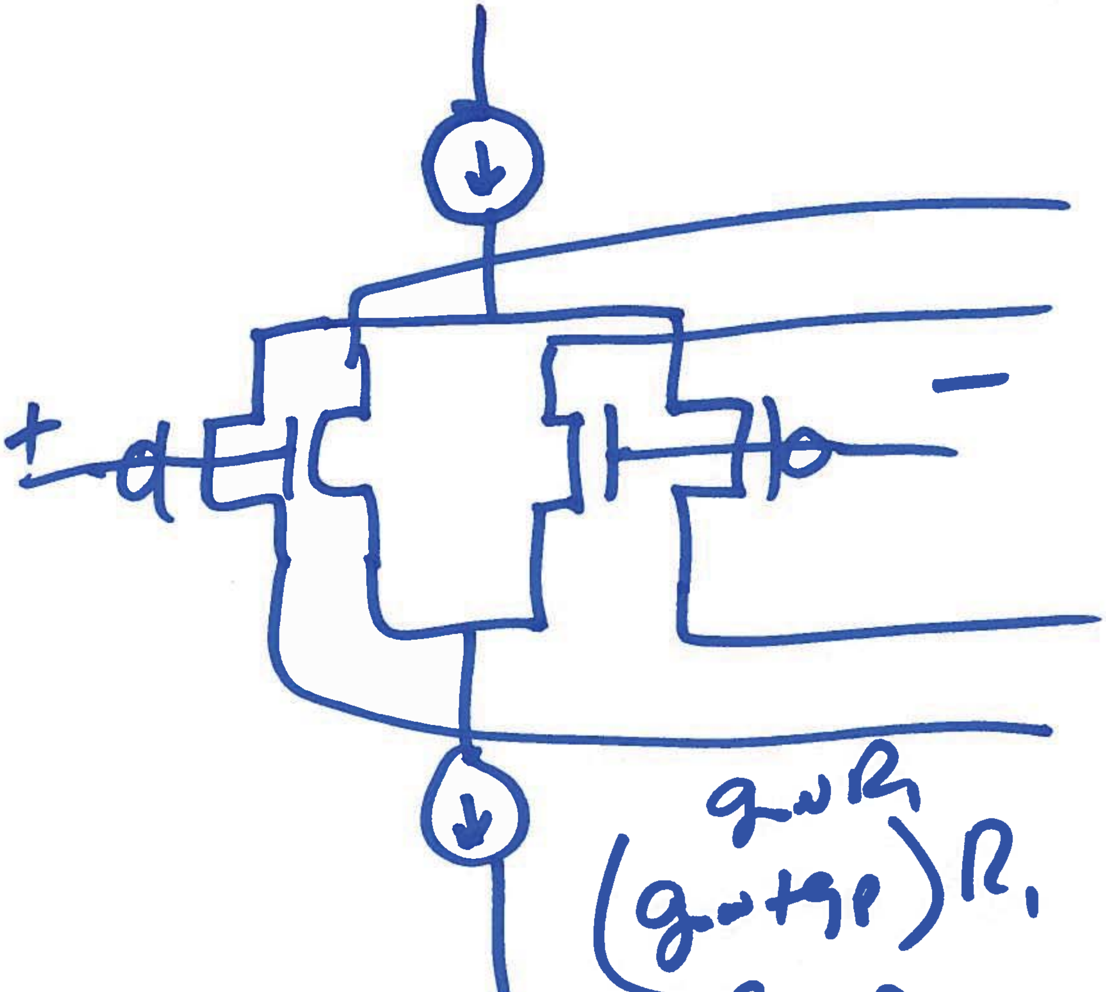
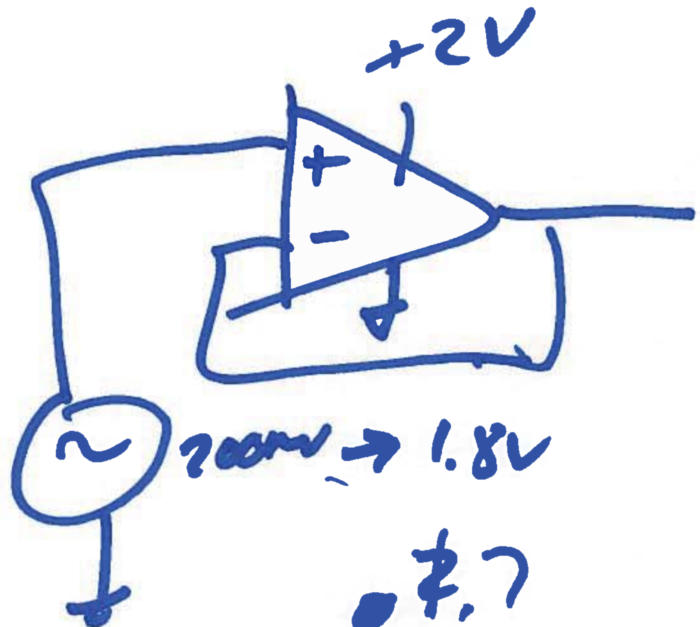
5)





$g_n R_1$

$(g_n + g_p) R_1$

$g_p R_1$

$$f_{un} = \frac{g_n + g_p}{2\pi C_c}$$