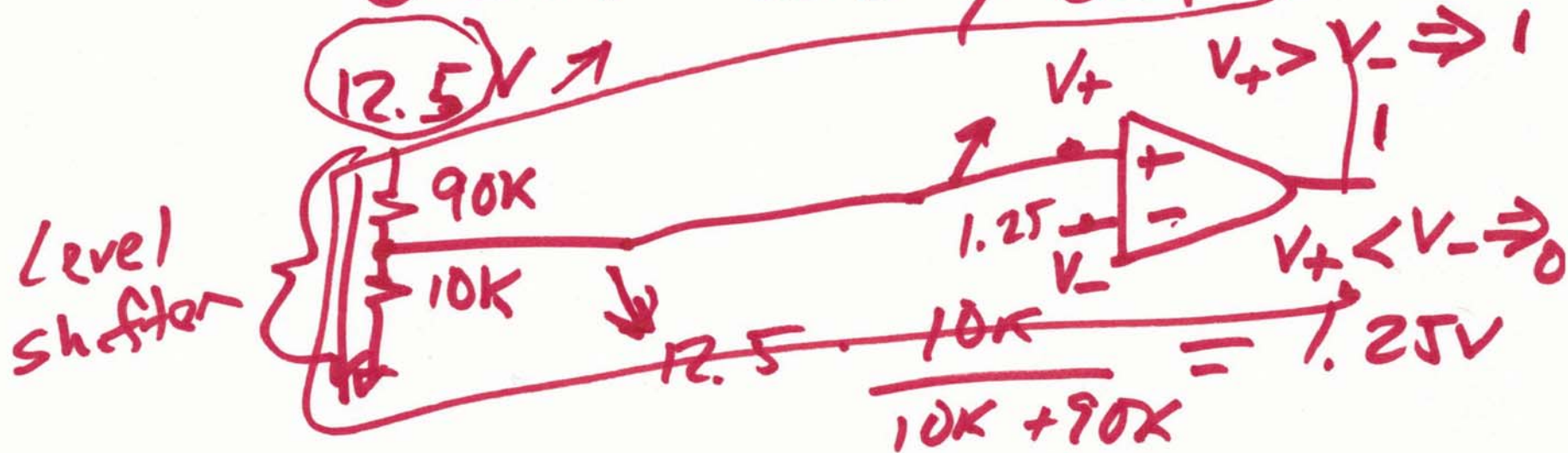


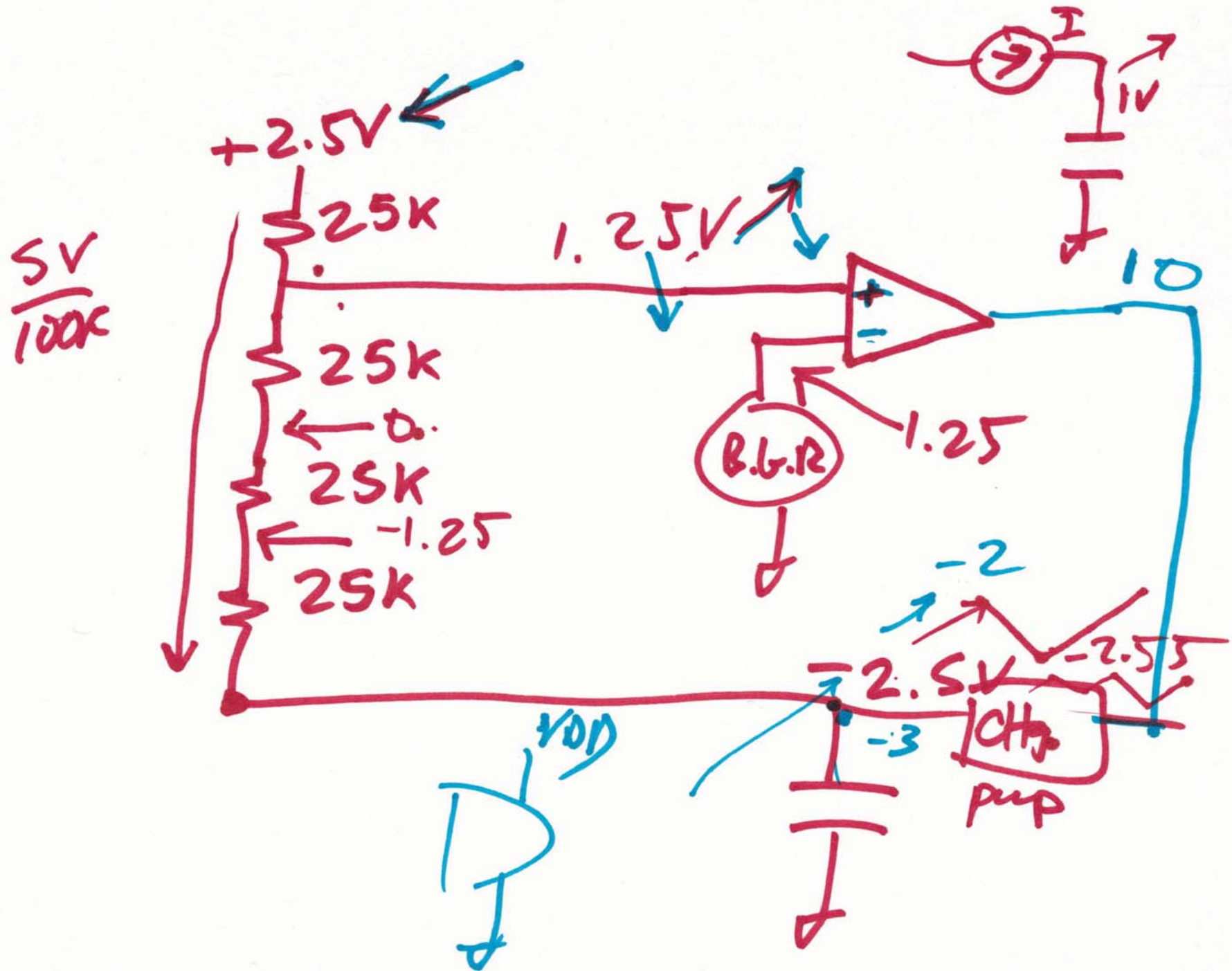
# Lecture 18

EE 421 / ECG 621

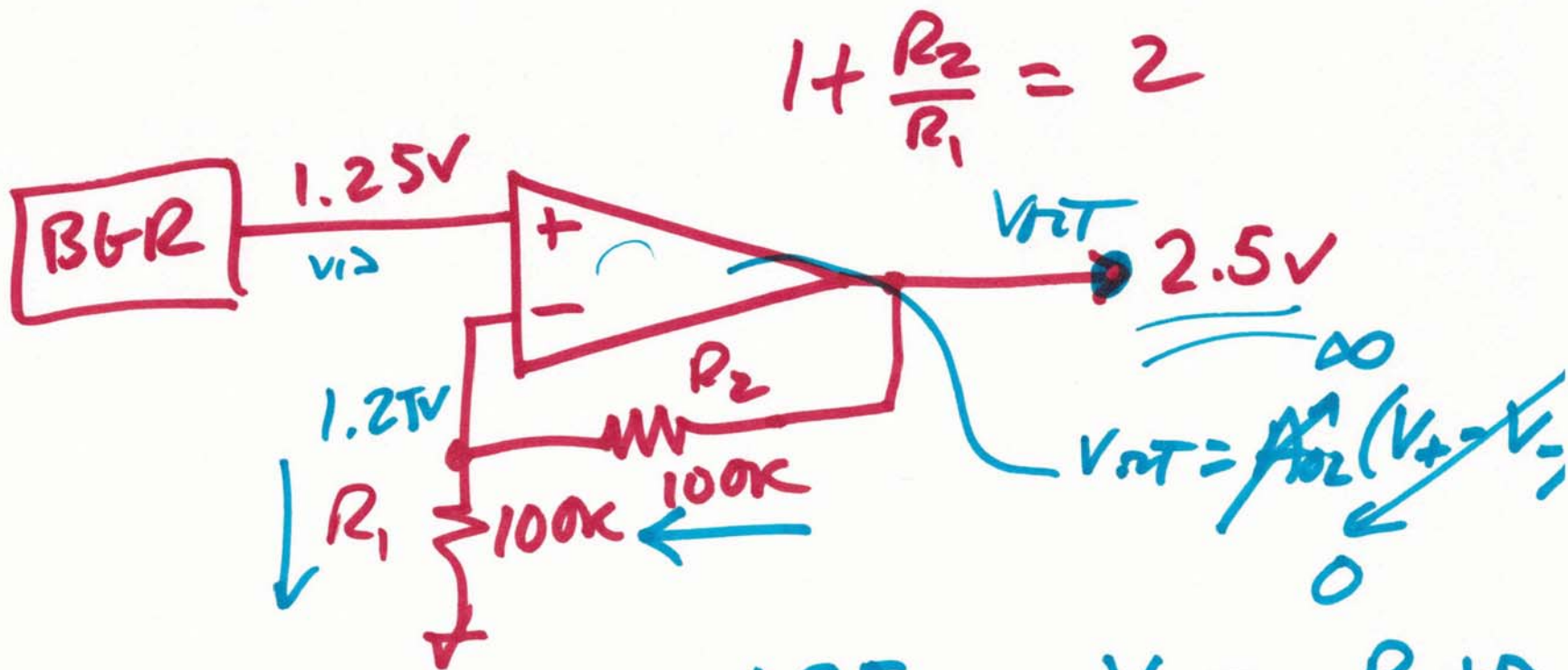
OCT. 28, 2015



$$\frac{12.5V}{100K} = I$$



2)

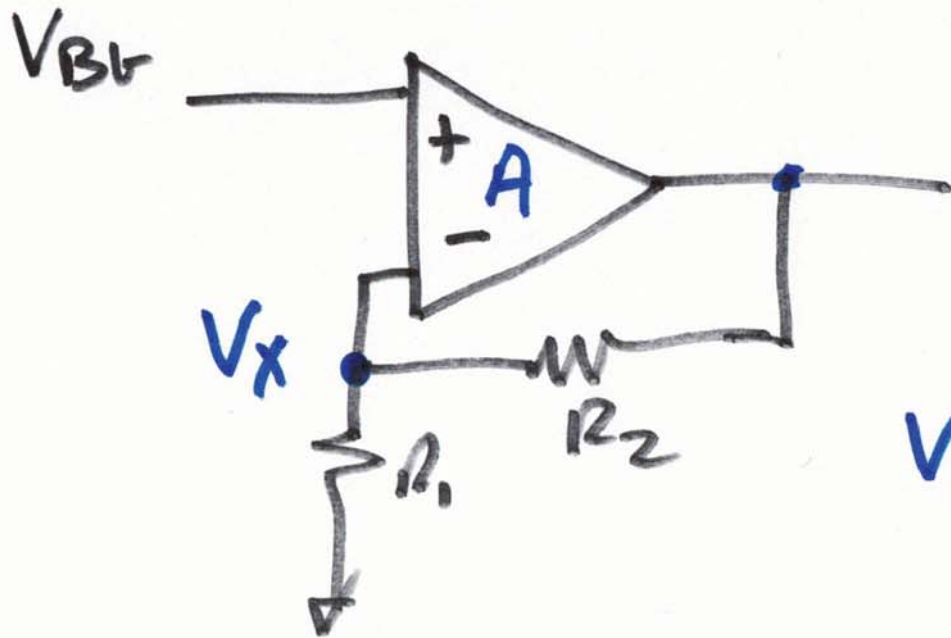


$$\frac{1.25}{R_1} = \frac{V_{OUT} - 1.25}{R_2} \Rightarrow \frac{V_{OUT}}{1.25} = \frac{R_1 + R_2}{R_1}$$

$$= 1 + \frac{R_2}{R_1}$$

$$V_{OUT} = \underline{\underline{2.5V}}$$

3)



$$V_{OUT} = A(V_{BL} - V_x)$$

$$V_x = V_{OUT} \cdot \frac{R_1}{R_1 + R_2}$$

$$V_{OUT} = A \left( V_{BL} - V_{OUT} \cdot \frac{R_1}{R_1 + R_2} \right)$$

$$V_{OUT} \left( 1 + A \cdot \frac{R_1}{R_1 + R_2} \right) = A \cdot V_{BL}$$

$$V_{OUT} = \frac{V_{BL}}{\frac{1}{A} + \frac{R_1}{R_1 + R_2}}$$

4)

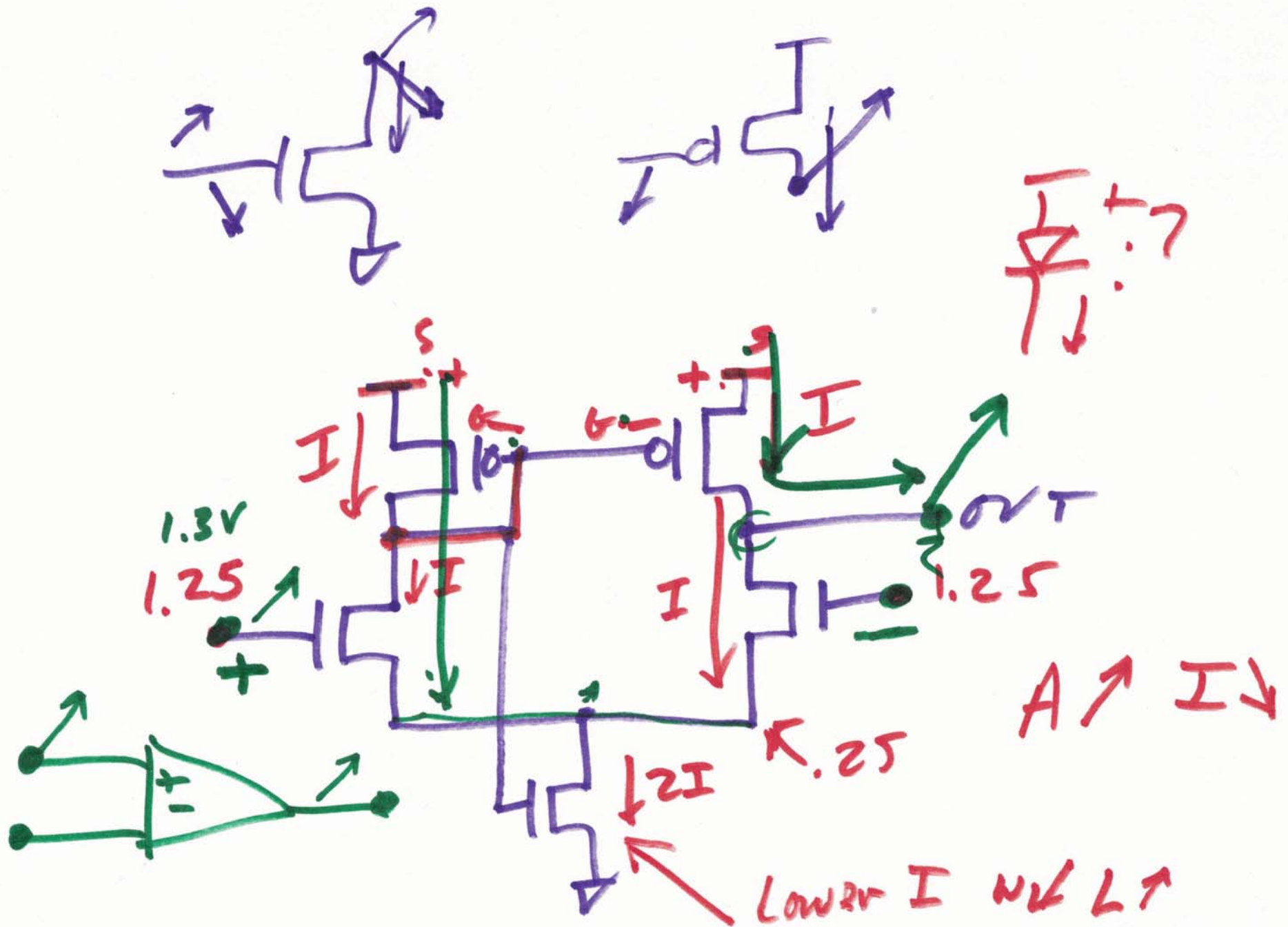
$$A = 10$$

$$R_1 = R_2, \quad V_{BT} = 1.25$$

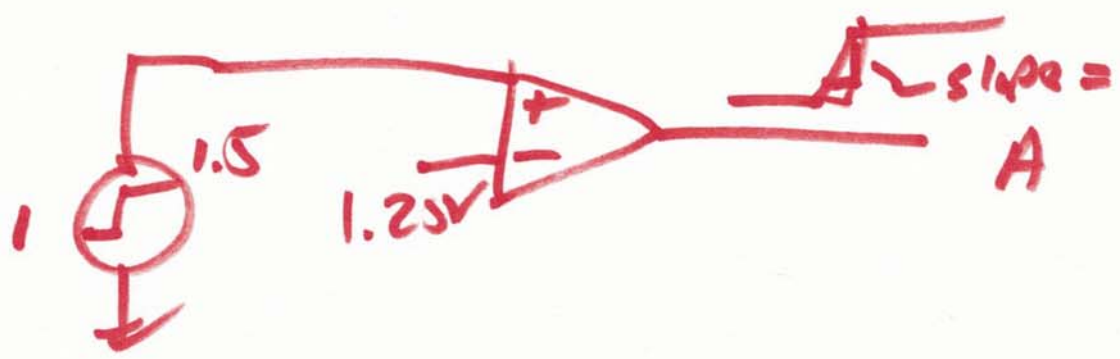
$$V_{OT} = ?$$

$$V_{OT} = \frac{1.25}{\underbrace{.01} + \frac{1}{2}} = \frac{1.25}{.6}$$

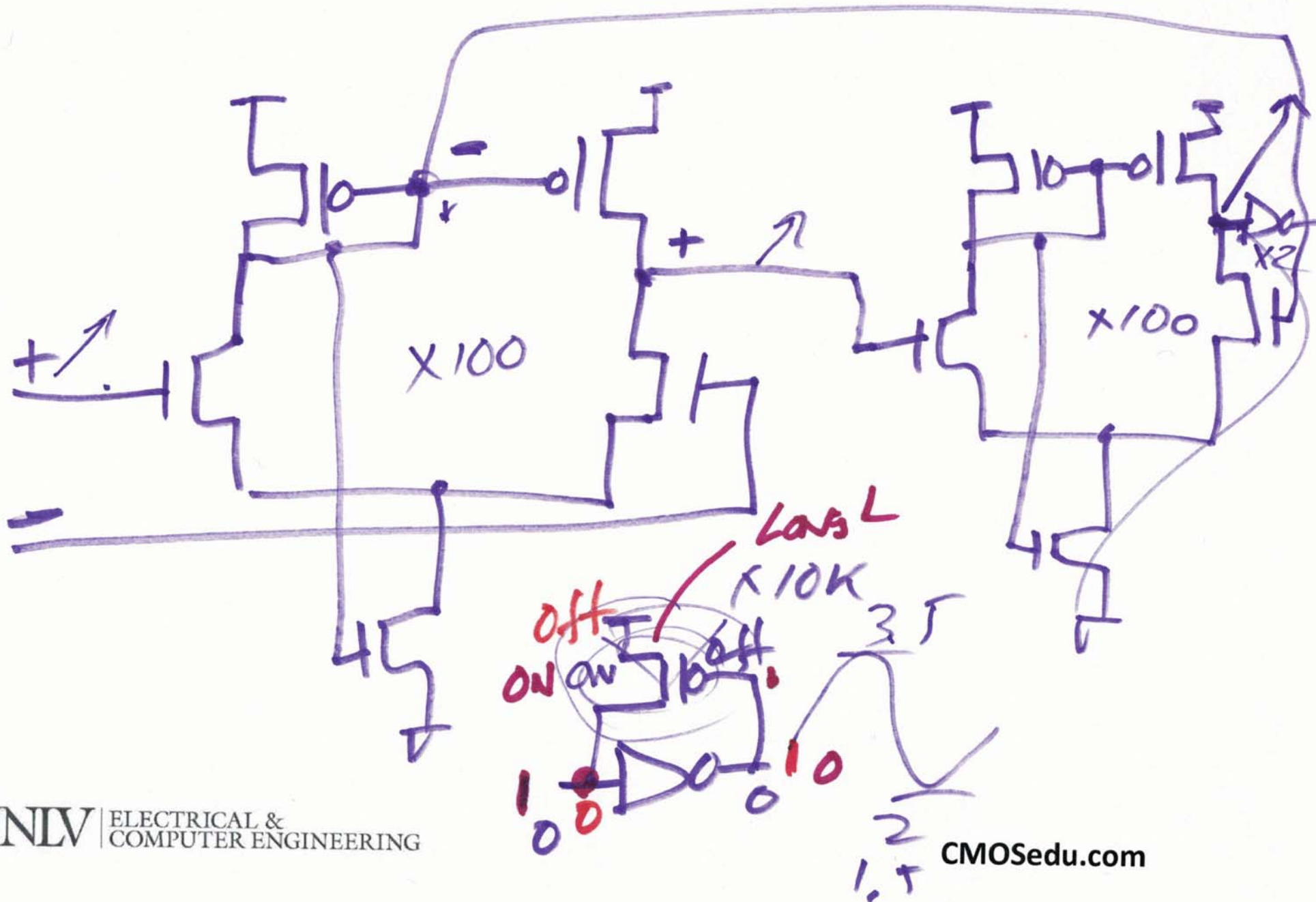
$$\frac{1.25}{.51} \Rightarrow 2.45$$
$$= \underline{\underline{2.08V}}$$
$$\neq 2.5V$$



6)

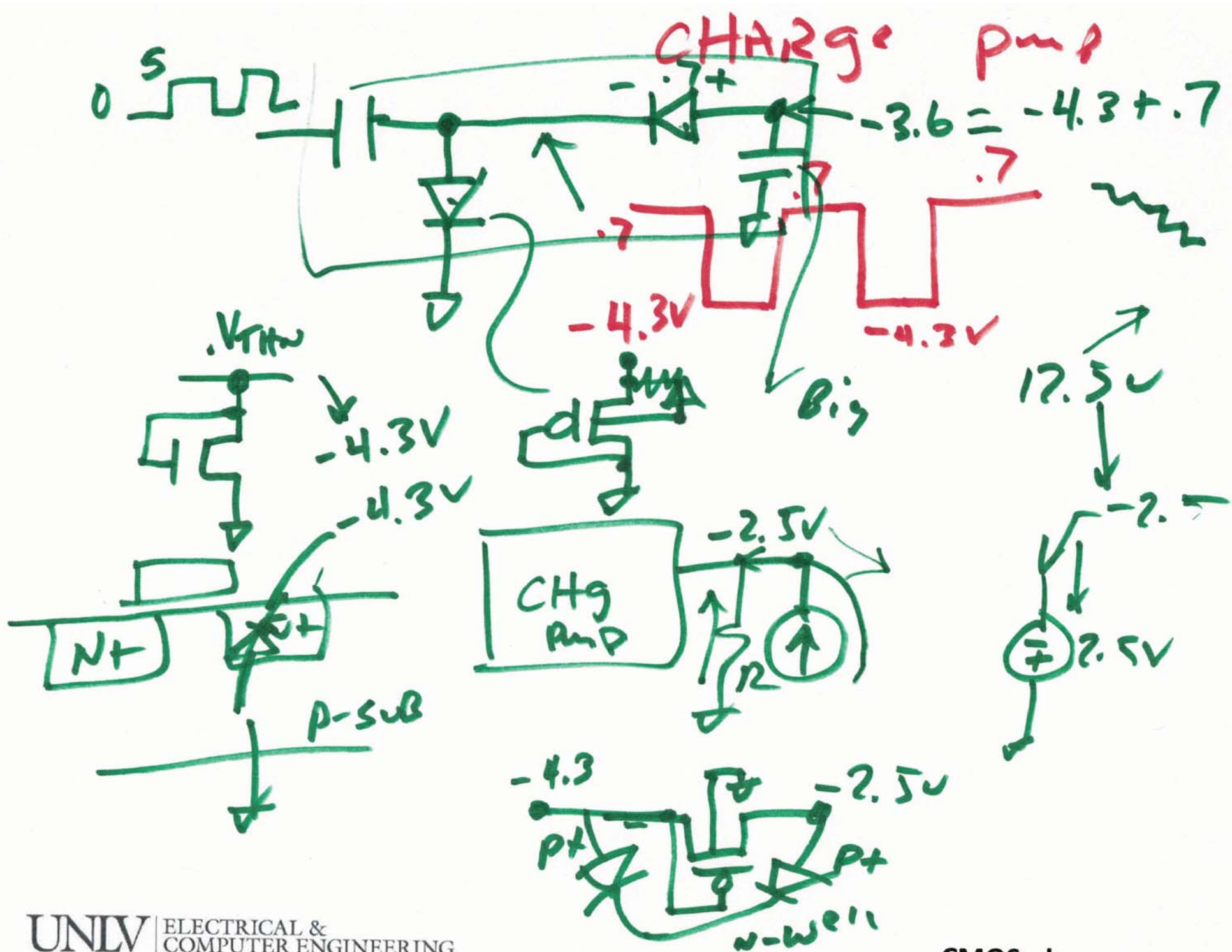


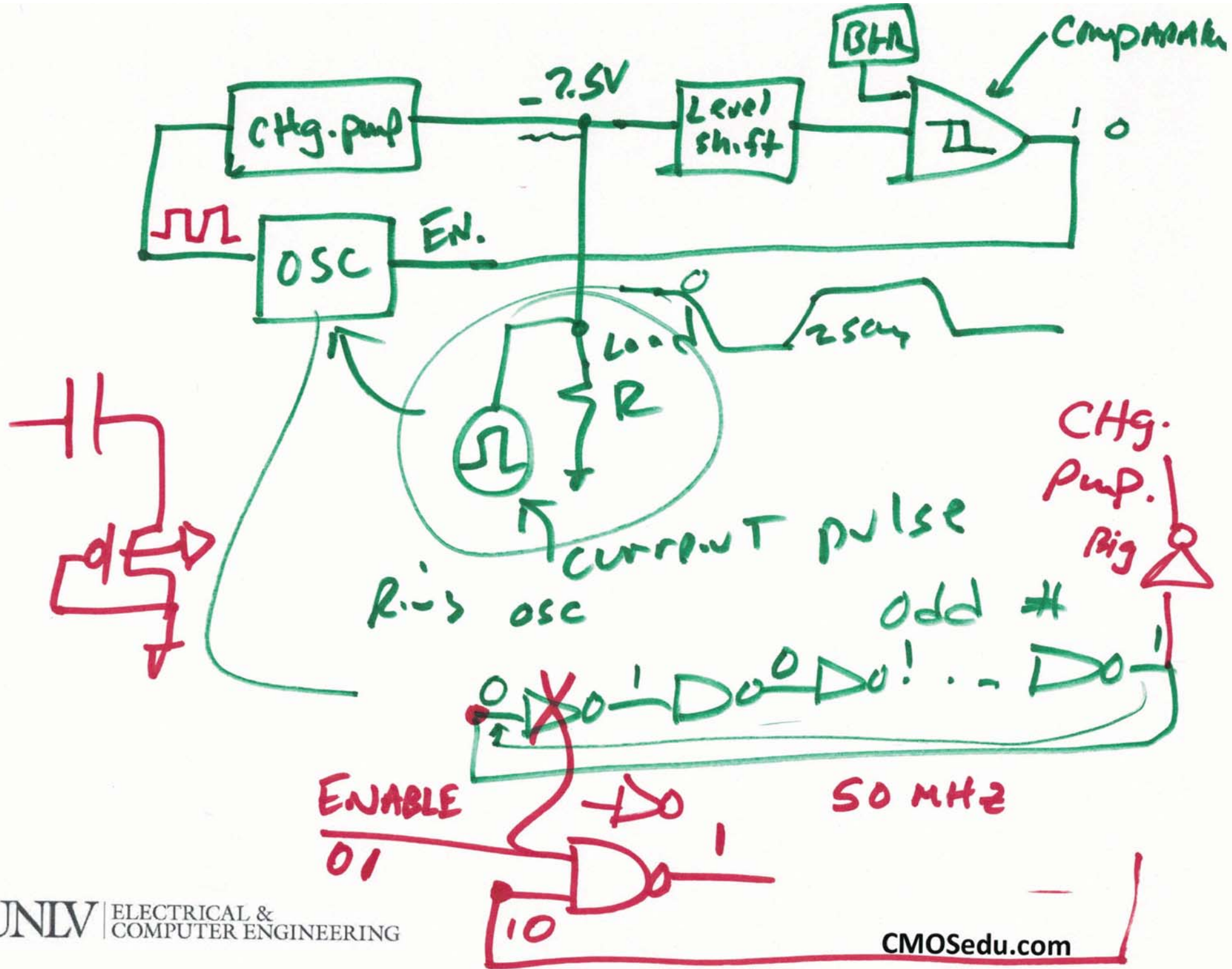
# Comparator



8)







10)