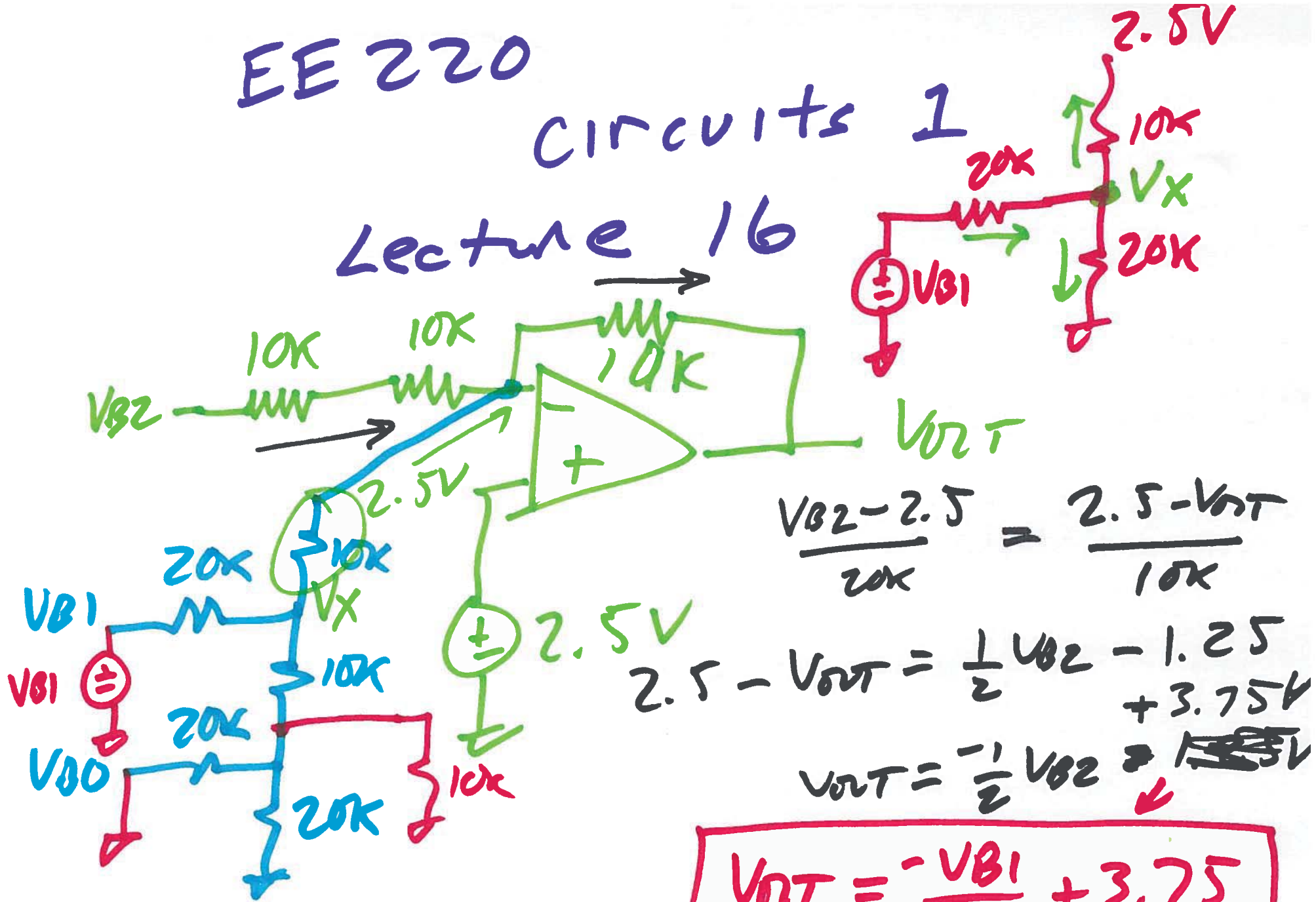


EE 220

Circuits 1

Lecture 16



$$\frac{V_{b2} - 2.5}{20K} = \frac{2.5 - V_{out}}{10K}$$

$$2.5 - V_{out} = \frac{1}{2} V_{b2} - 1.25$$

$$V_{out} = -\frac{1}{2} V_{b2} + 3.75$$

$$V_{out} = -\frac{V_{b1}}{2} + 3.75$$

$$\frac{V_{B1} - V_x}{20k} = \frac{V_x}{20k} + \frac{V_x - 2.5}{10k}$$

$$V_{B1} - V_x = V_x + 2V_x - 5V$$

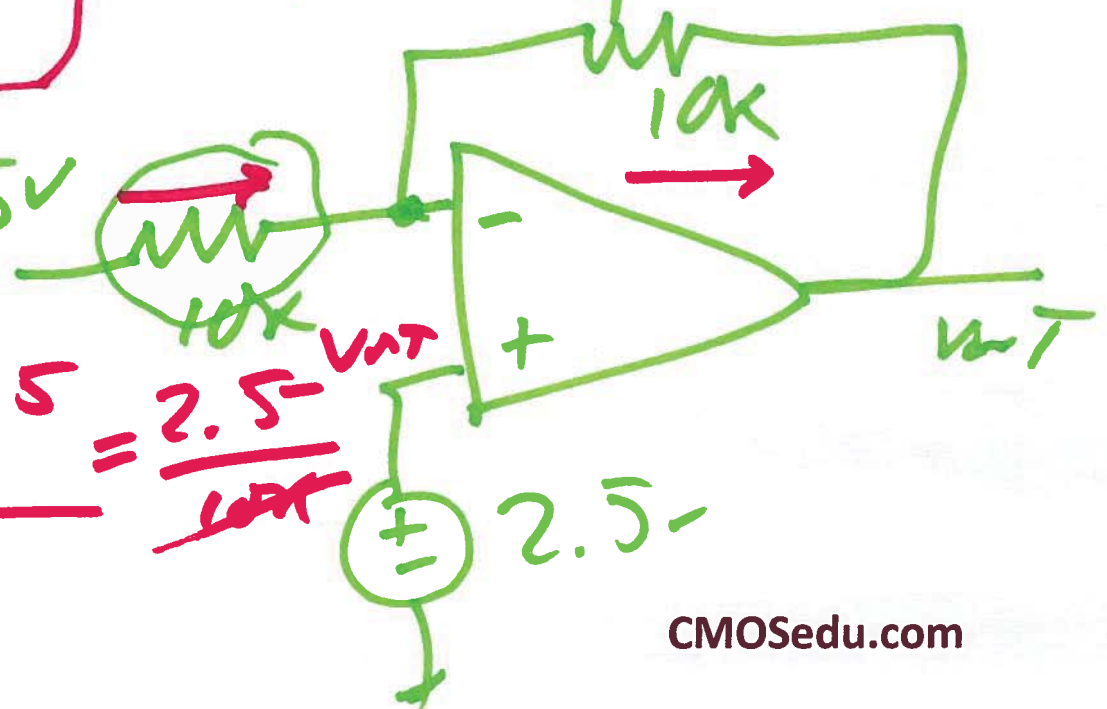
$$V_{B1} + 5V = 4V_x$$

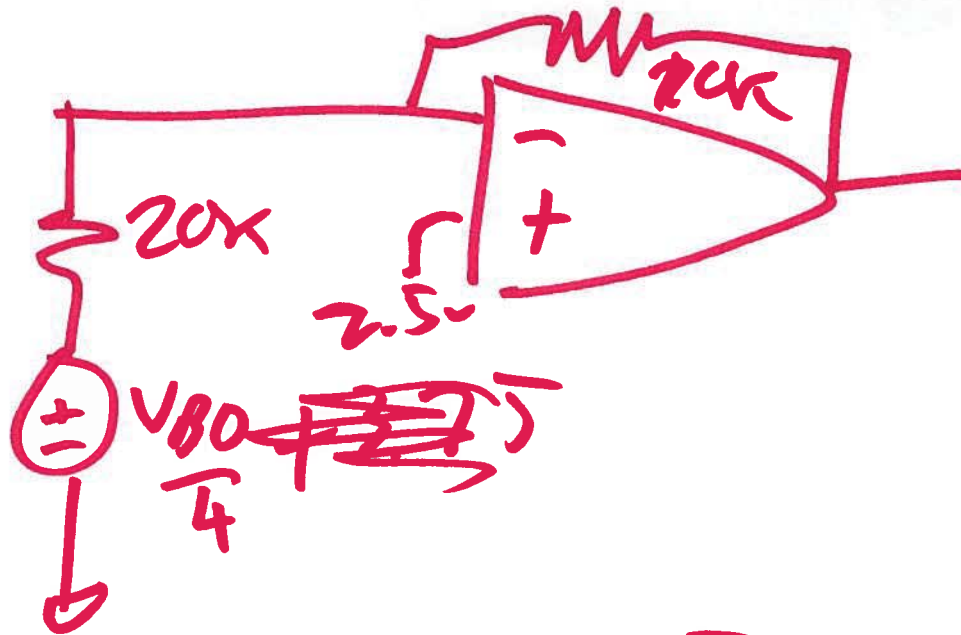
$$V_x = \frac{V_{B1}}{4} + 1.25V$$

$$V_{out} = -\frac{V_{B1}}{4} + 3.75$$

$$\frac{V_{B1}}{4} + 1.25V$$

$$\frac{\frac{V_{B1}}{4} + 1.25 - 2.5}{10k} = \frac{2.5 - V_{out}}{10k}$$

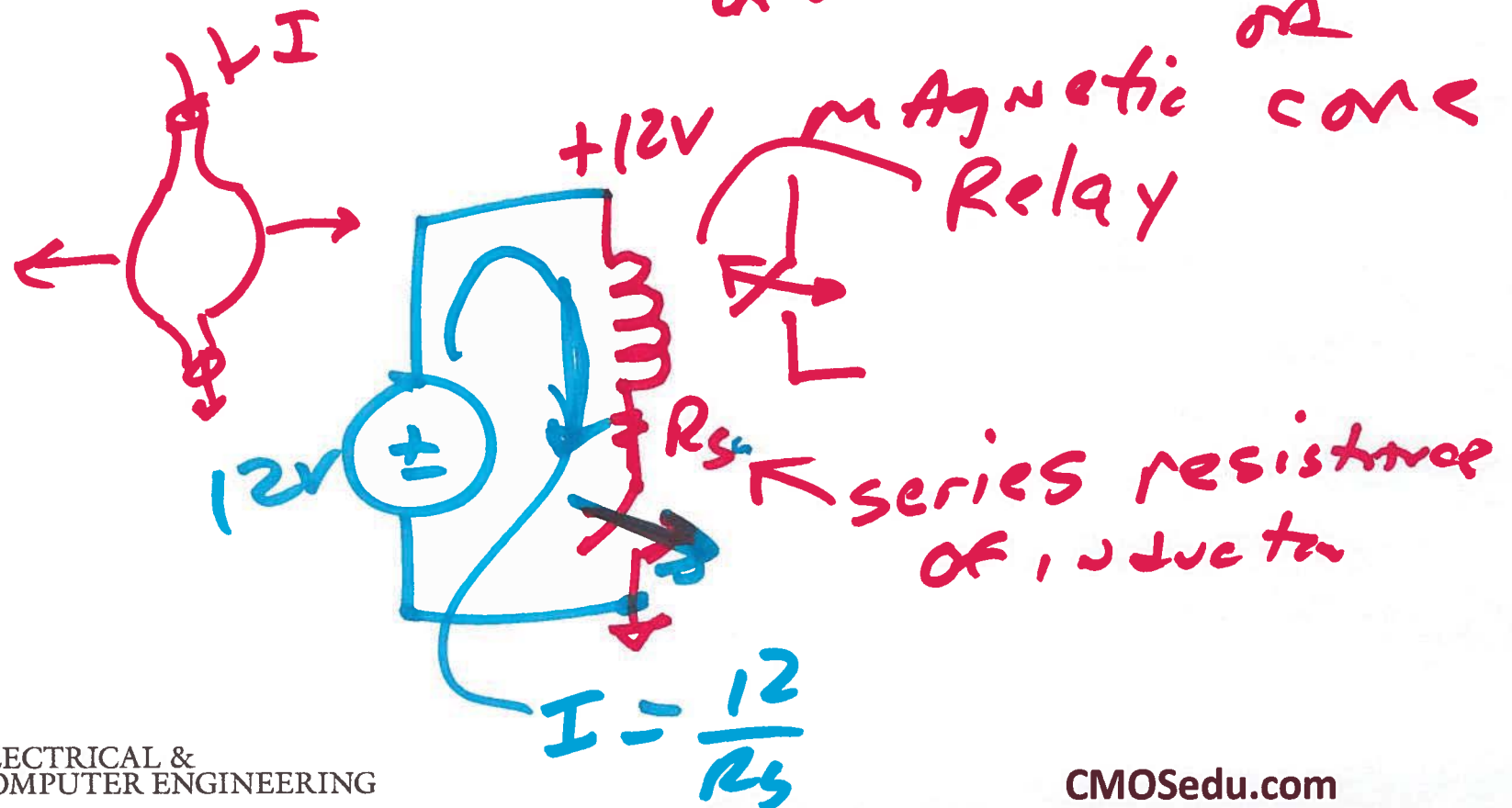
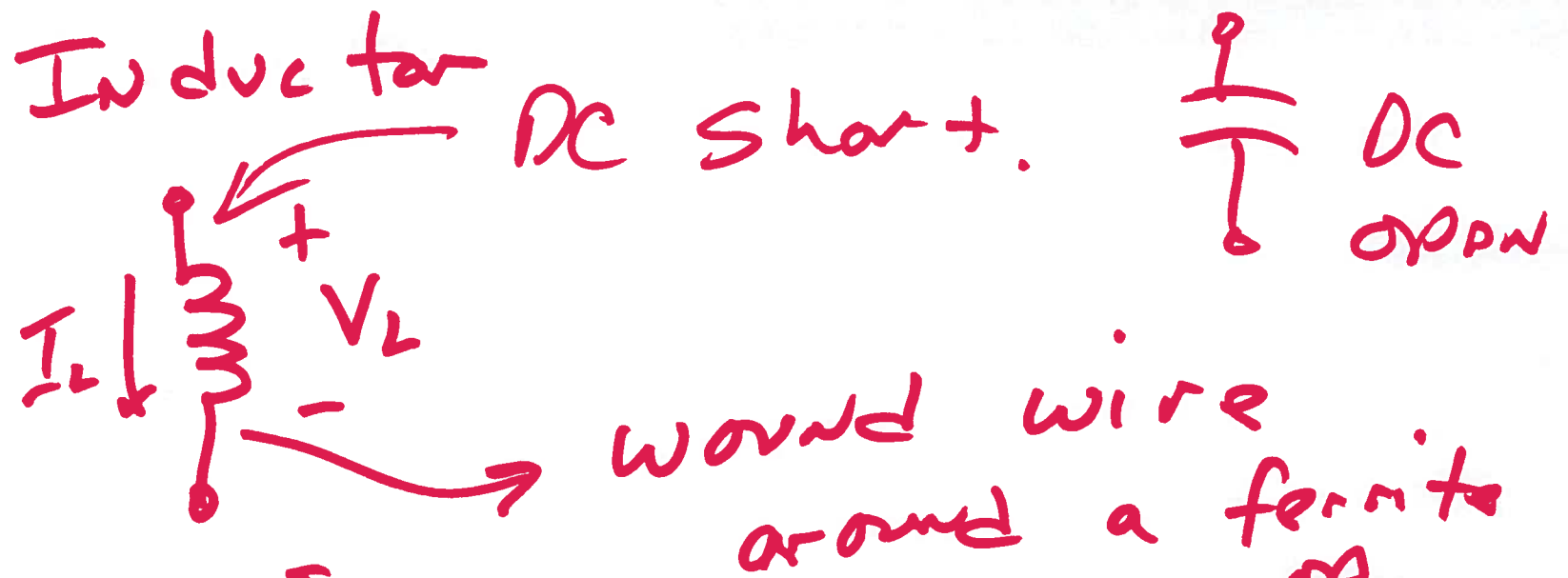




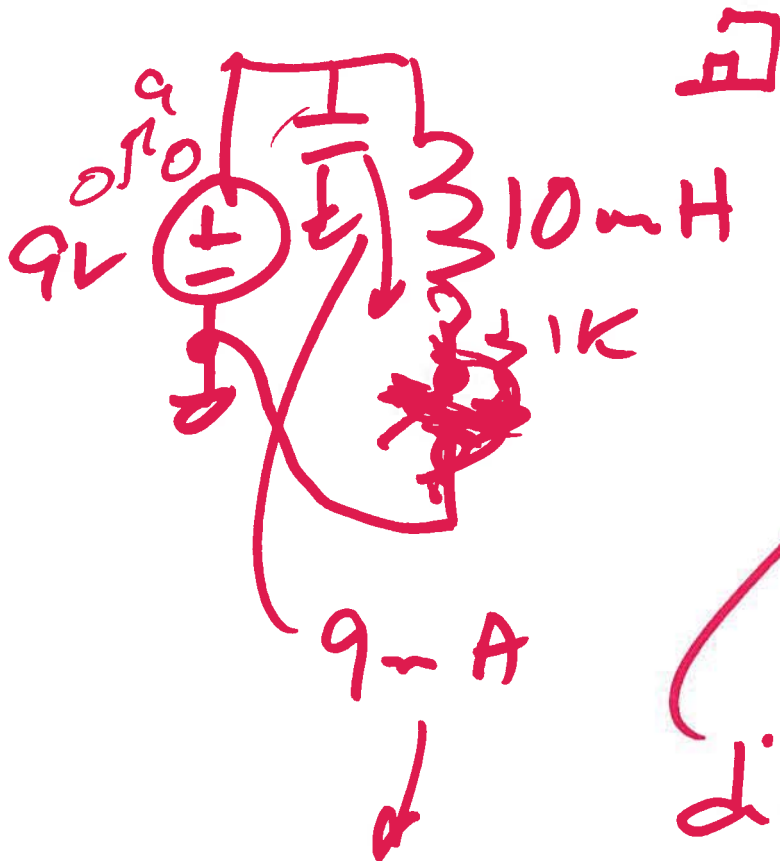
$$\frac{\frac{V_{B0}}{4} - 2.5}{20k} =$$

$$\frac{2.5 - V_{OUT}}{20k}$$

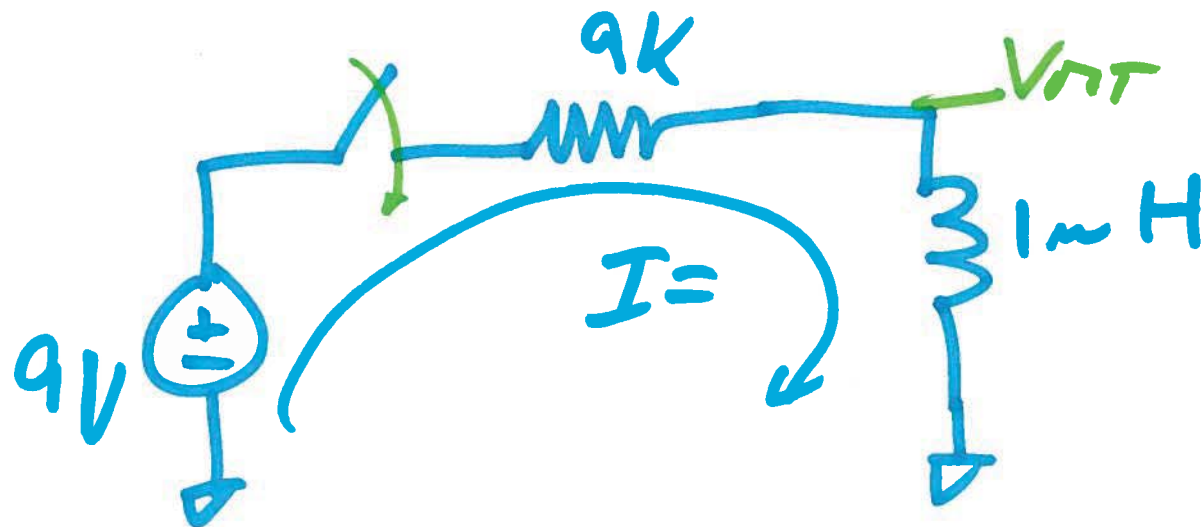
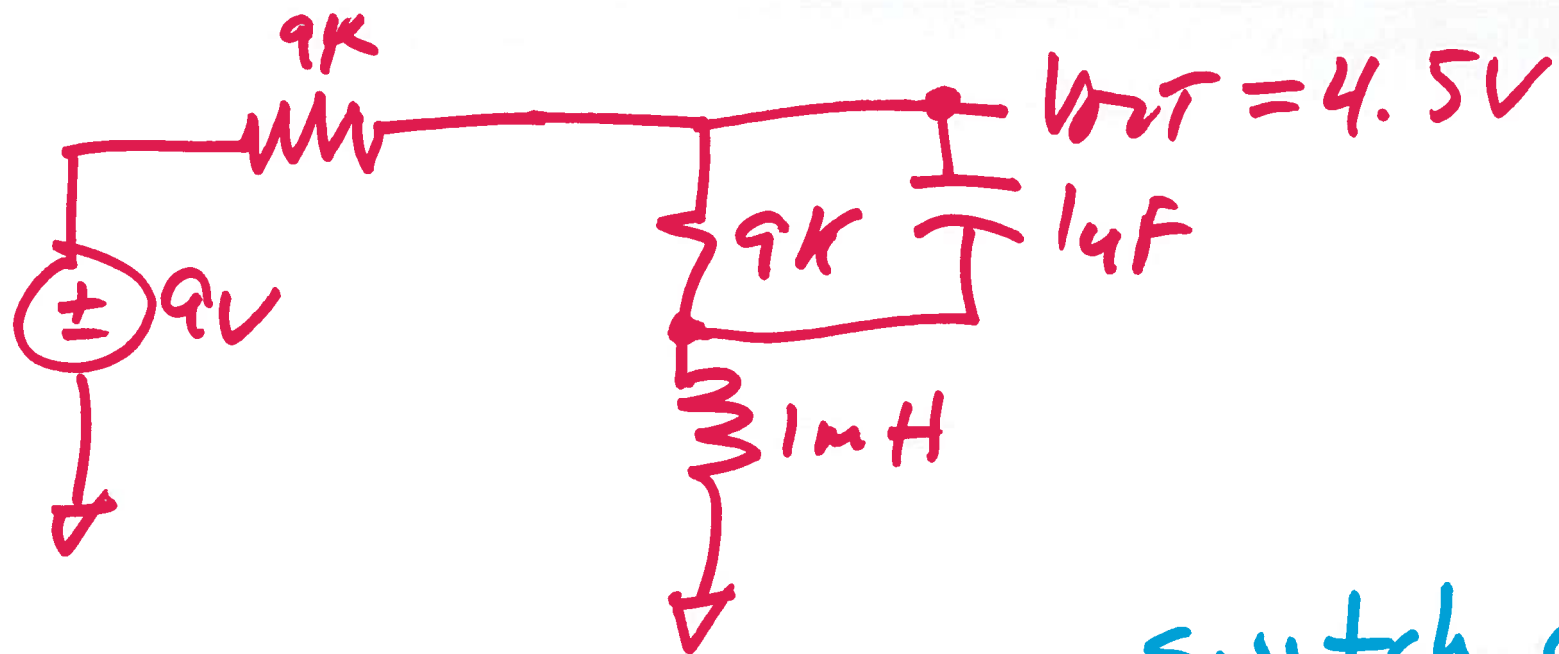
$$V_{OUT} = \frac{-V_{B0}}{8} + 3.75V$$



5)



b)



switch open

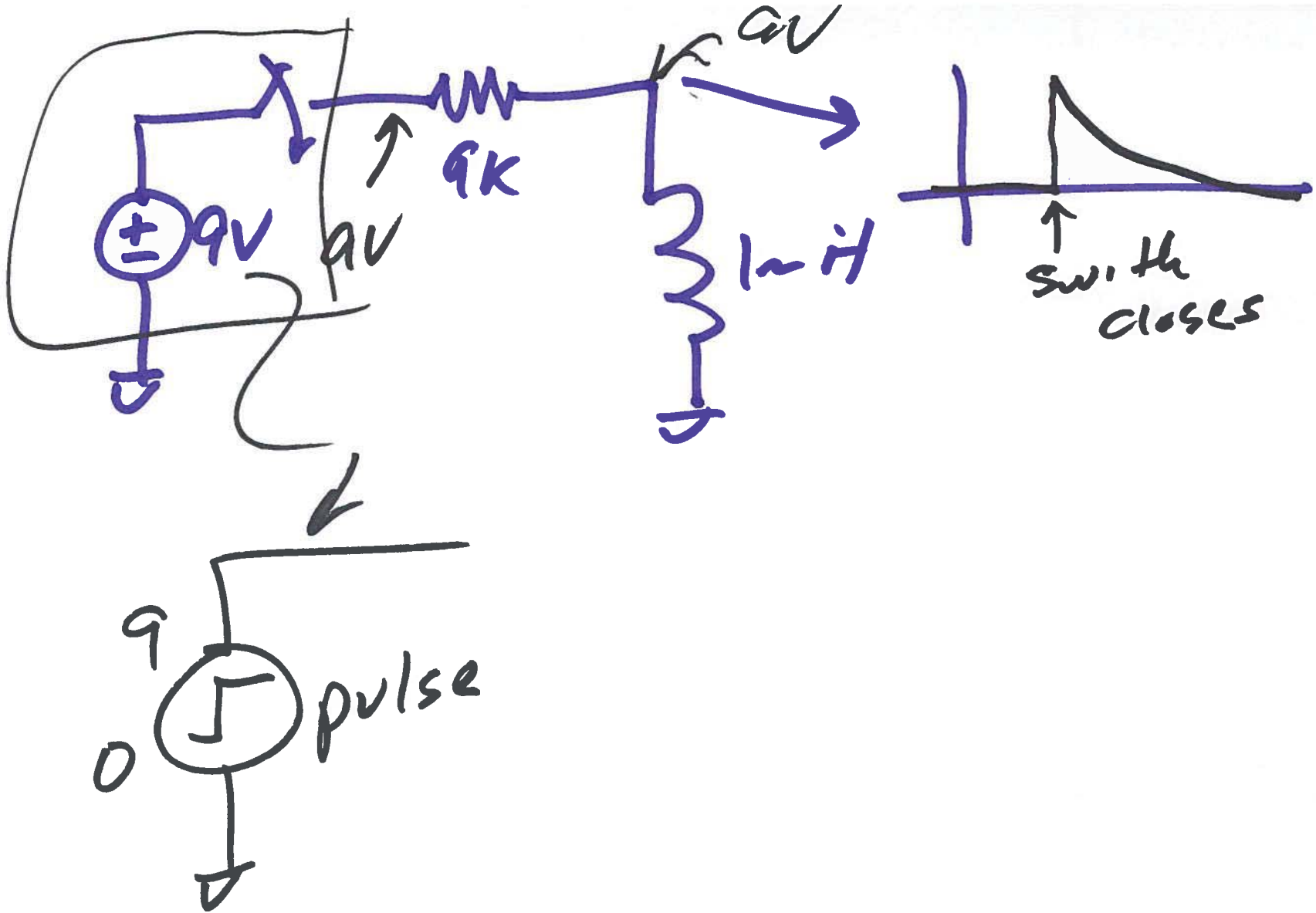
$$I = 0$$

$$V_{VT} = 0$$

switch closed

$$I = 1A$$

$$V_{VT} = 0$$



9)