

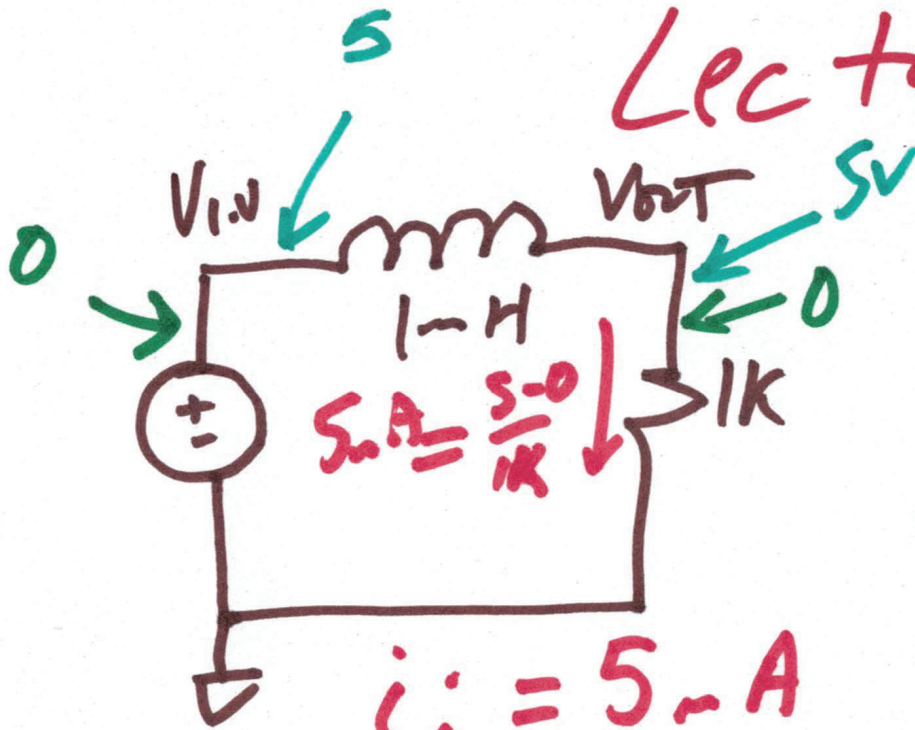
EE 220 circuits 1

OCT. 28, 2020

Lecture 18

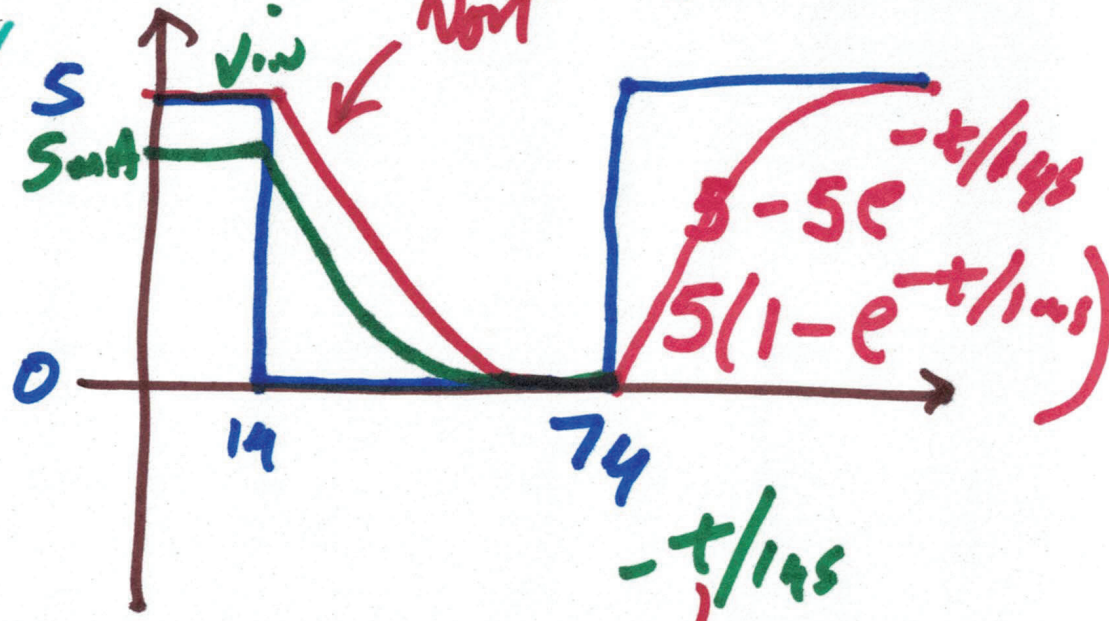
$$v_{RT} = i_L \cdot 1K$$

$$5V \cdot e^{-t/1\mu s}$$



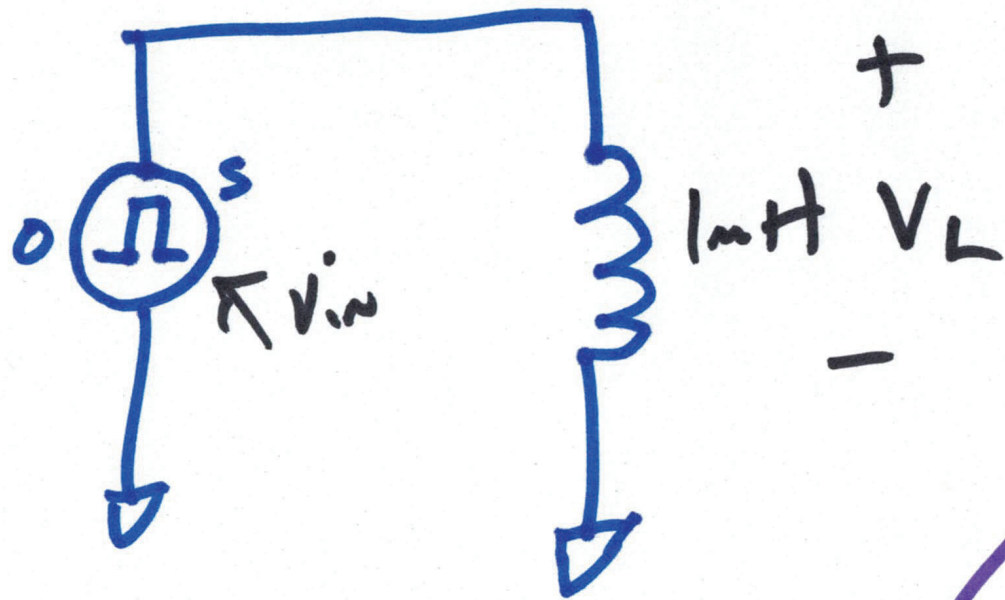
$$i_i = 5mA$$

$$i_f = 0$$



$$i_L(t) = 5mA e^{-t/1\mu s}$$

$$\frac{L}{R} = \frac{10^{-3}}{10^3} = 1\mu s \quad t \geq 1\mu s$$



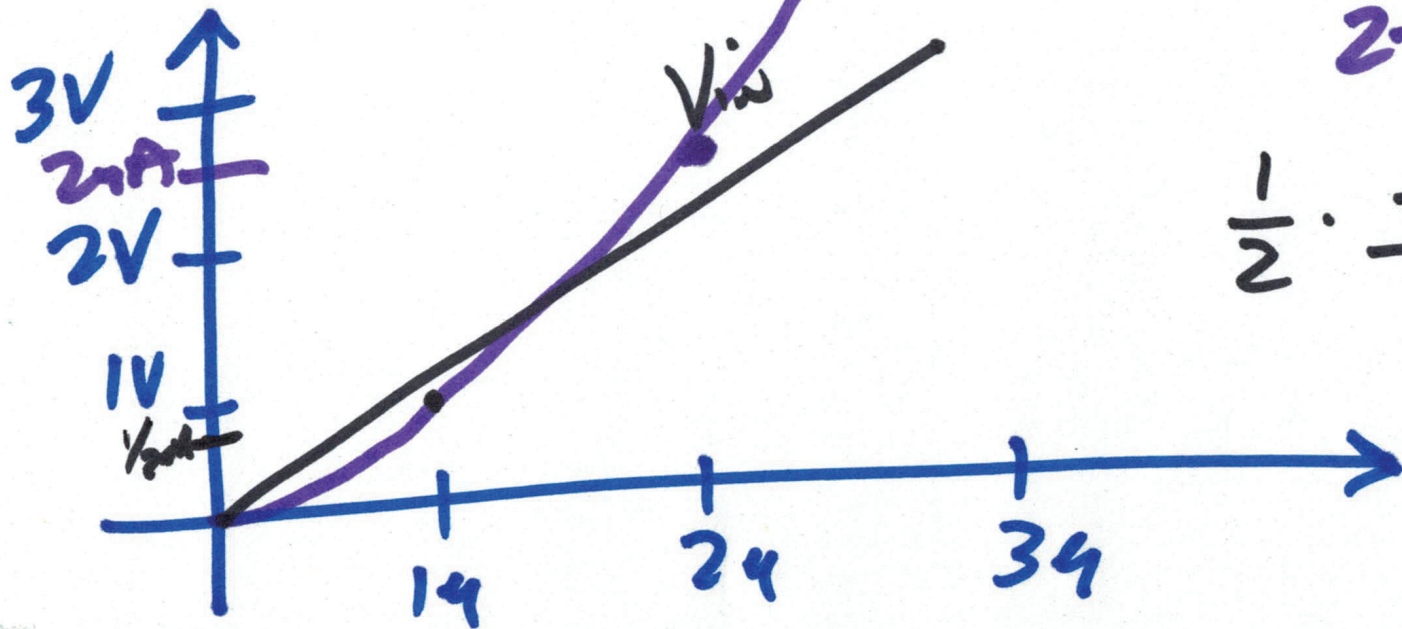
$$V = L \frac{di}{dt}$$

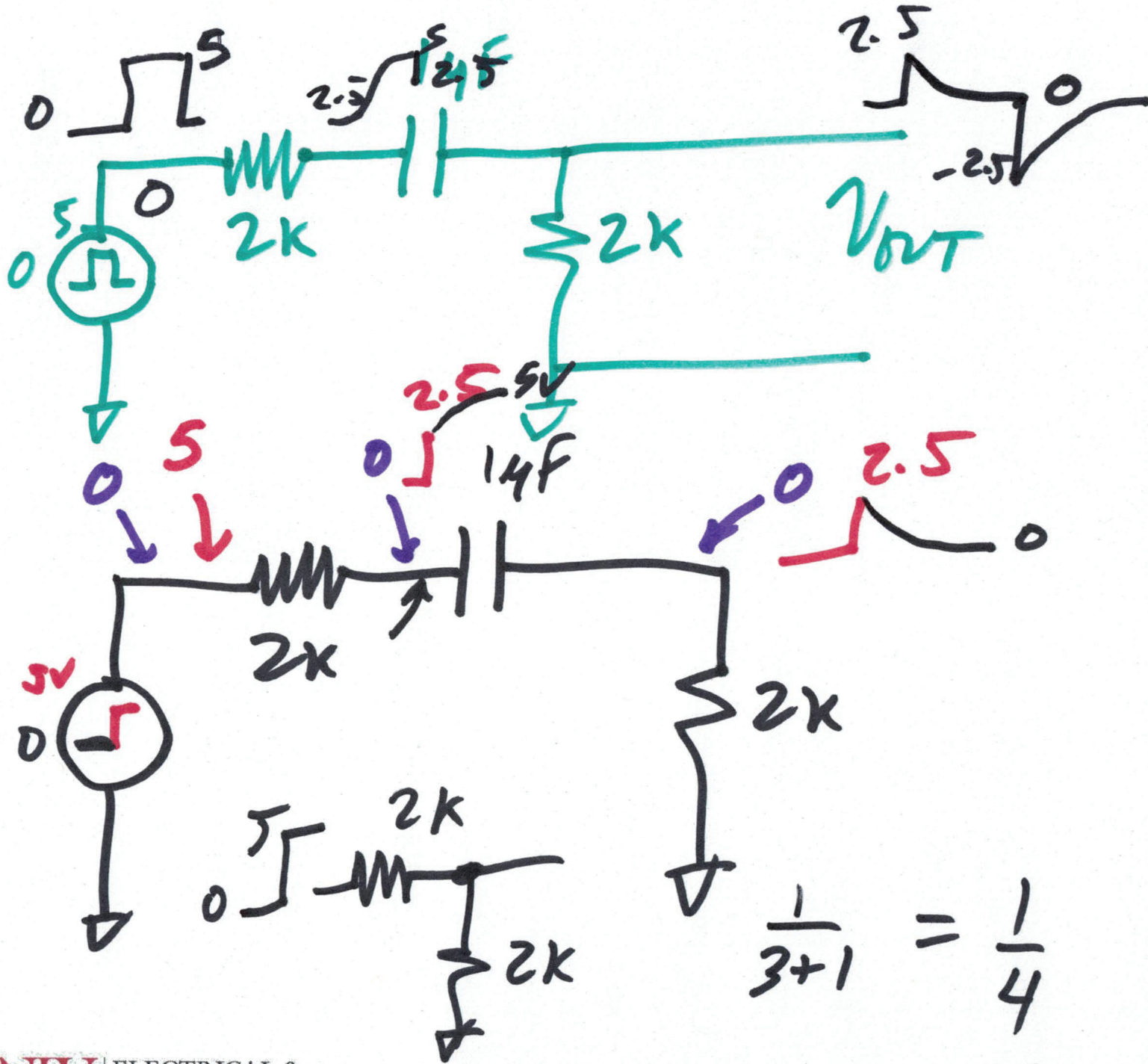
$$i = \frac{1}{L} \int v_L(t) \cdot dt$$

$$= 10^3 \frac{V \cdot t^2}{2 \cdot 14} \Big|_0^t$$

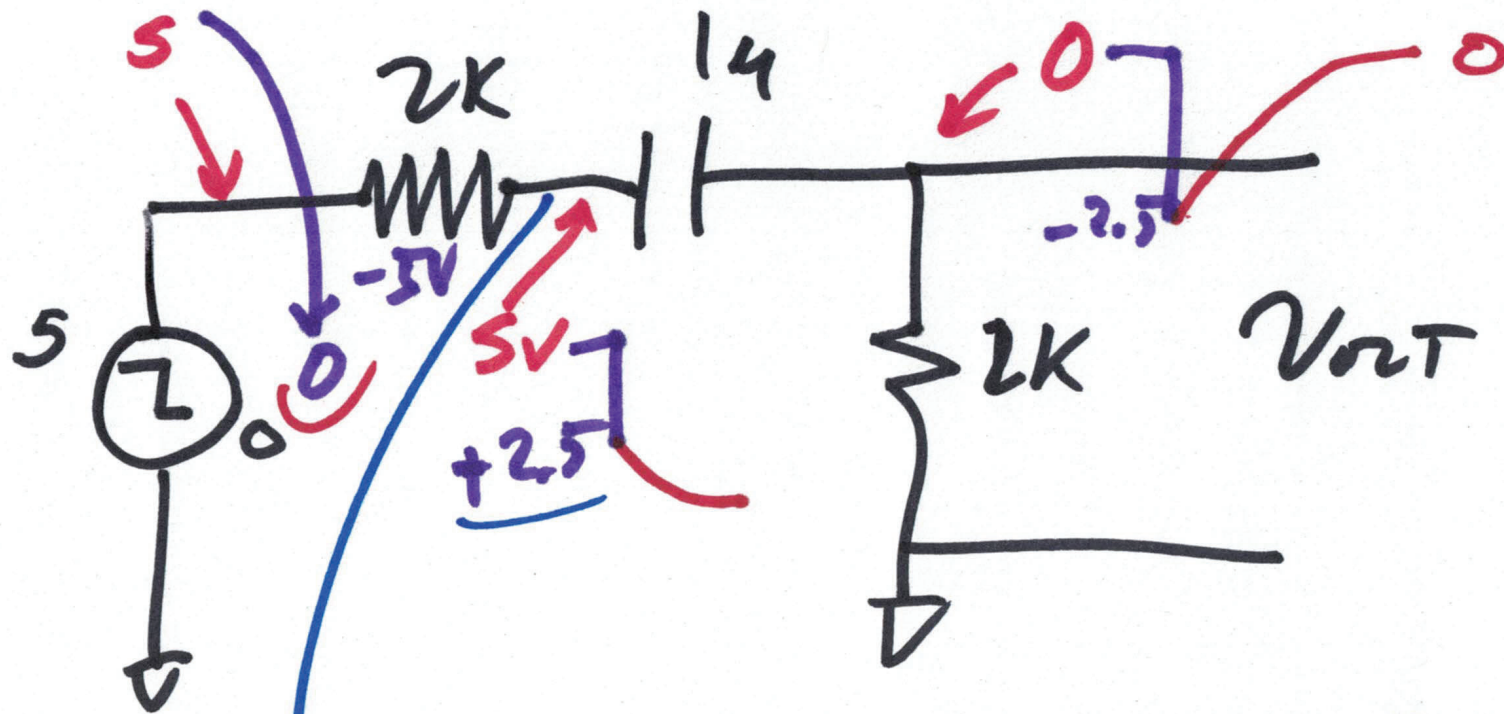
$$\frac{1}{2} \cdot \frac{t^2 \cdot 10^6 \cdot 10^{-3}}{10^{-6}}$$

$$\frac{1}{2} \frac{t^2}{10^{-12}} \mu A$$



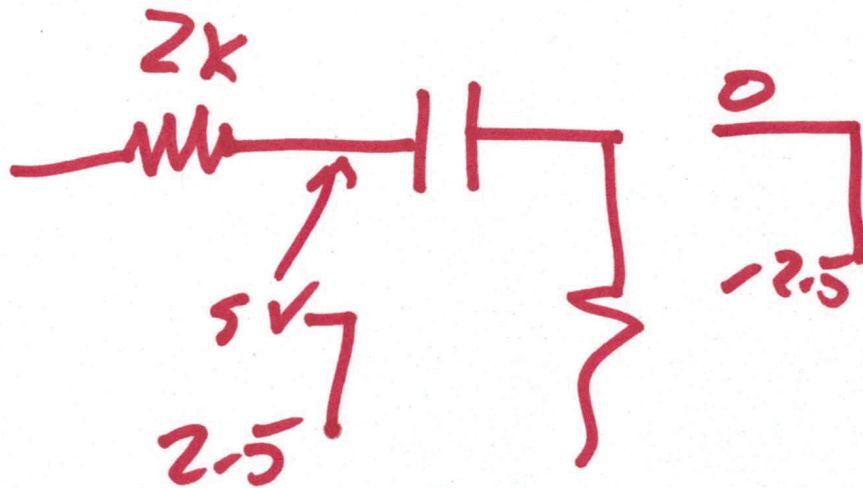
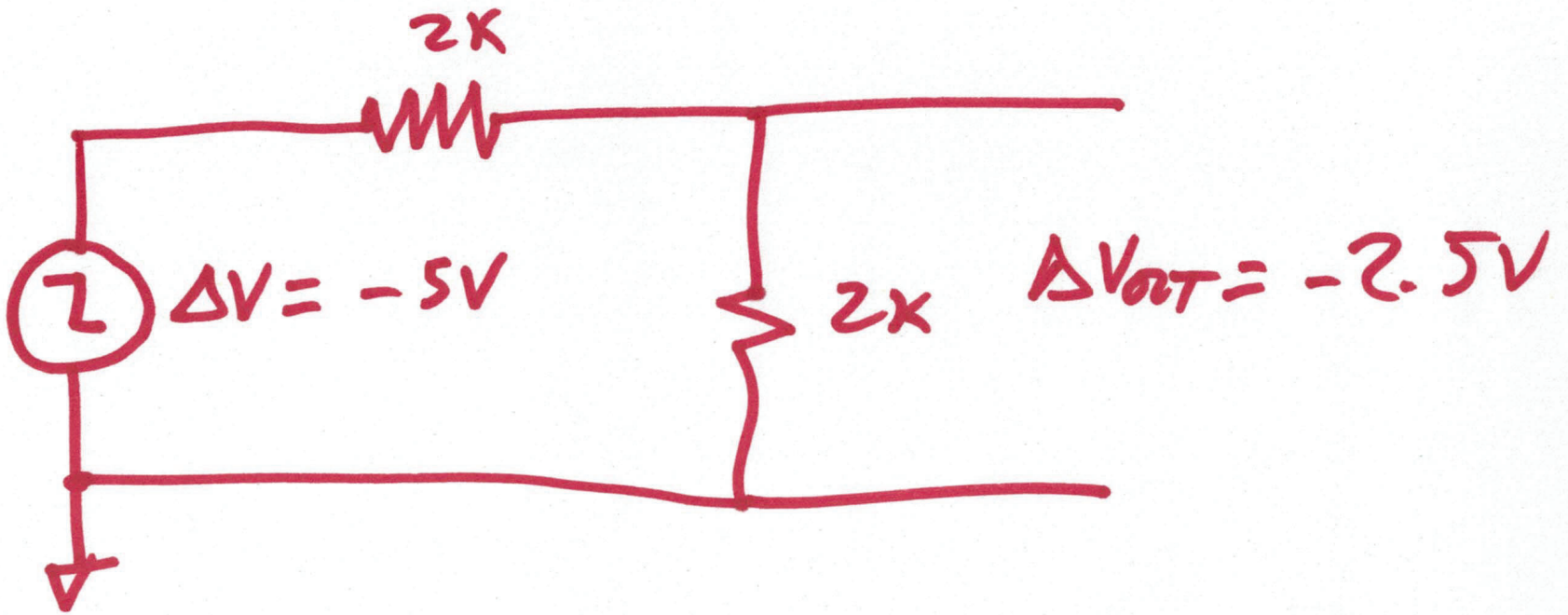


3)



$$14f \cdot (2.5 - (-2.5)) \quad CV = Q$$

$$= 54 \text{ Coulombs} \quad 14f \cdot 5 = 54 \text{ Coulombs}$$



5)