

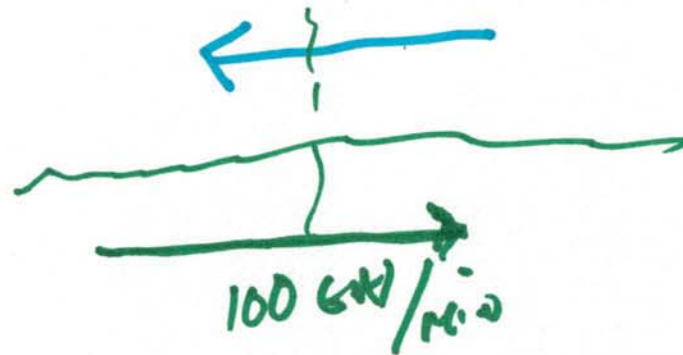
EE 220

Circuits I

Fall 2018

August 27

Lecture 1

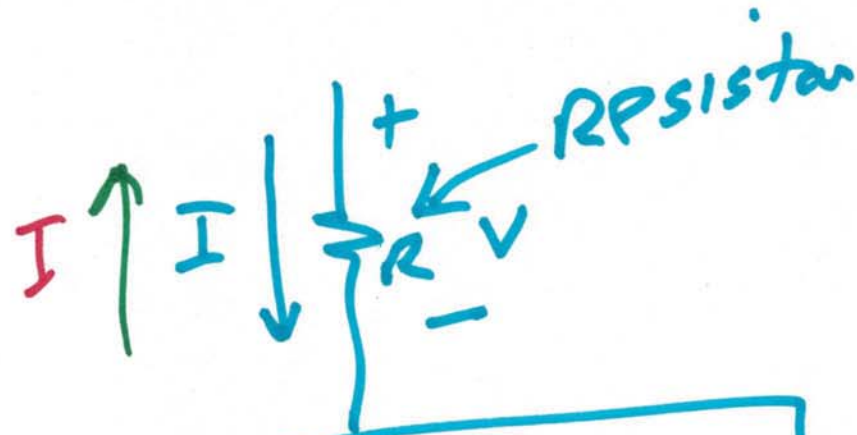


1)

# Ohm's Law

Voltage = Current  $\times$  Resistance

$$V = I \cdot R$$

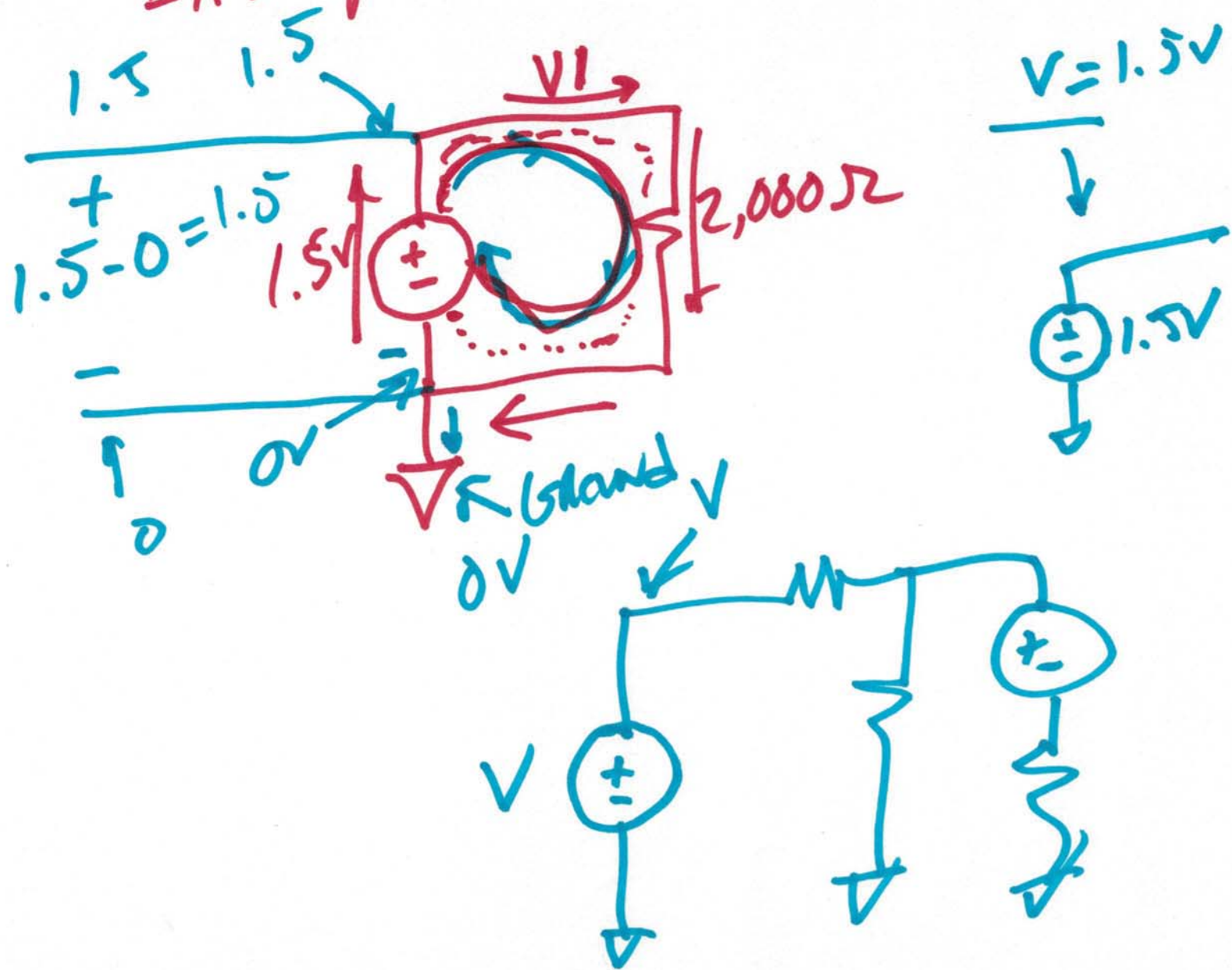


$$V = I \cdot R$$

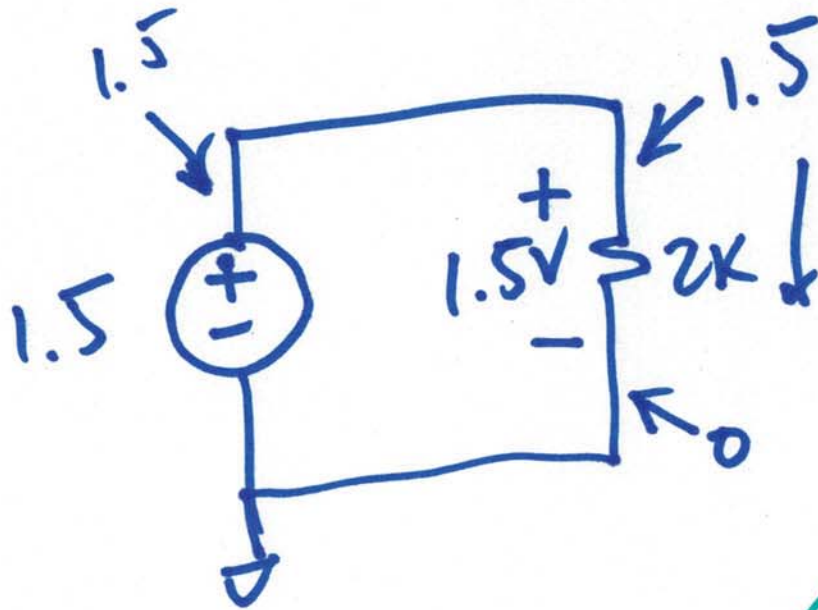
$$V = (-I) \cdot R$$



# Example



3)



$$V = I \cdot R$$

$$1.5 = I \cdot 2k$$

Micro =  $10^{-6}$

$$I = 750 \mu A$$

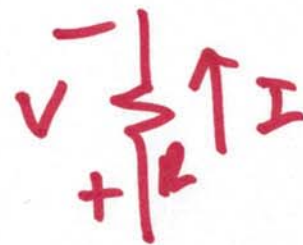
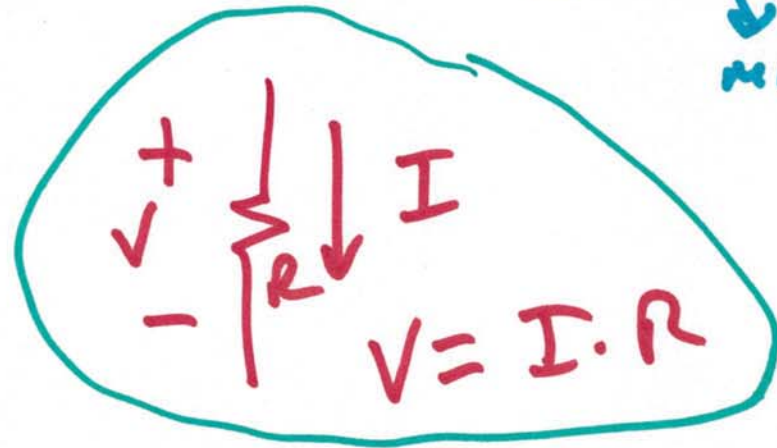
$$.75 \text{ mA}$$

milli =  $10^{-3}$

$$\frac{1V}{1k} = 1 \mu A$$

$$\frac{500}{1k} = \frac{1}{2} \text{ mA}$$

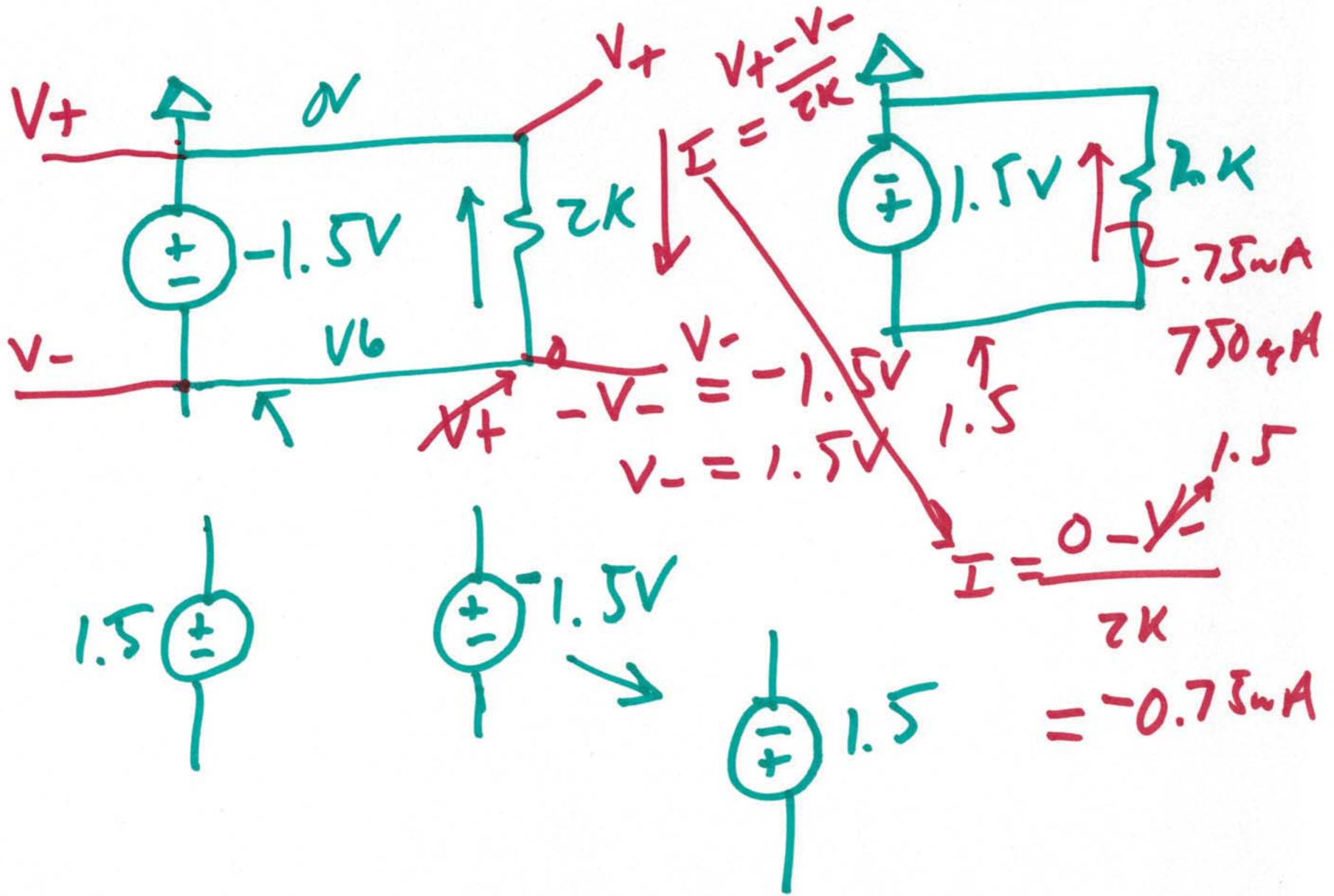
$$\frac{1.5}{1k} = 1.5 \mu A$$



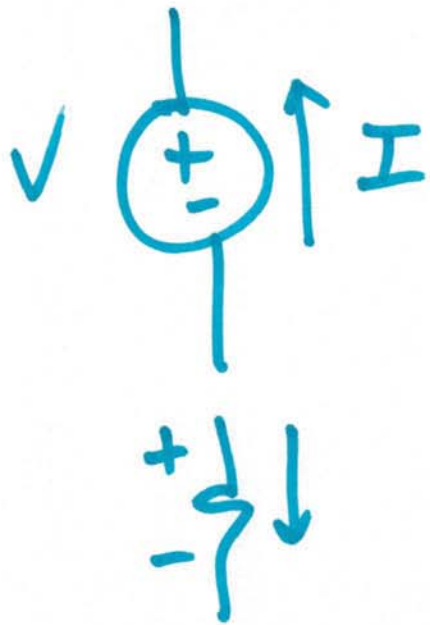
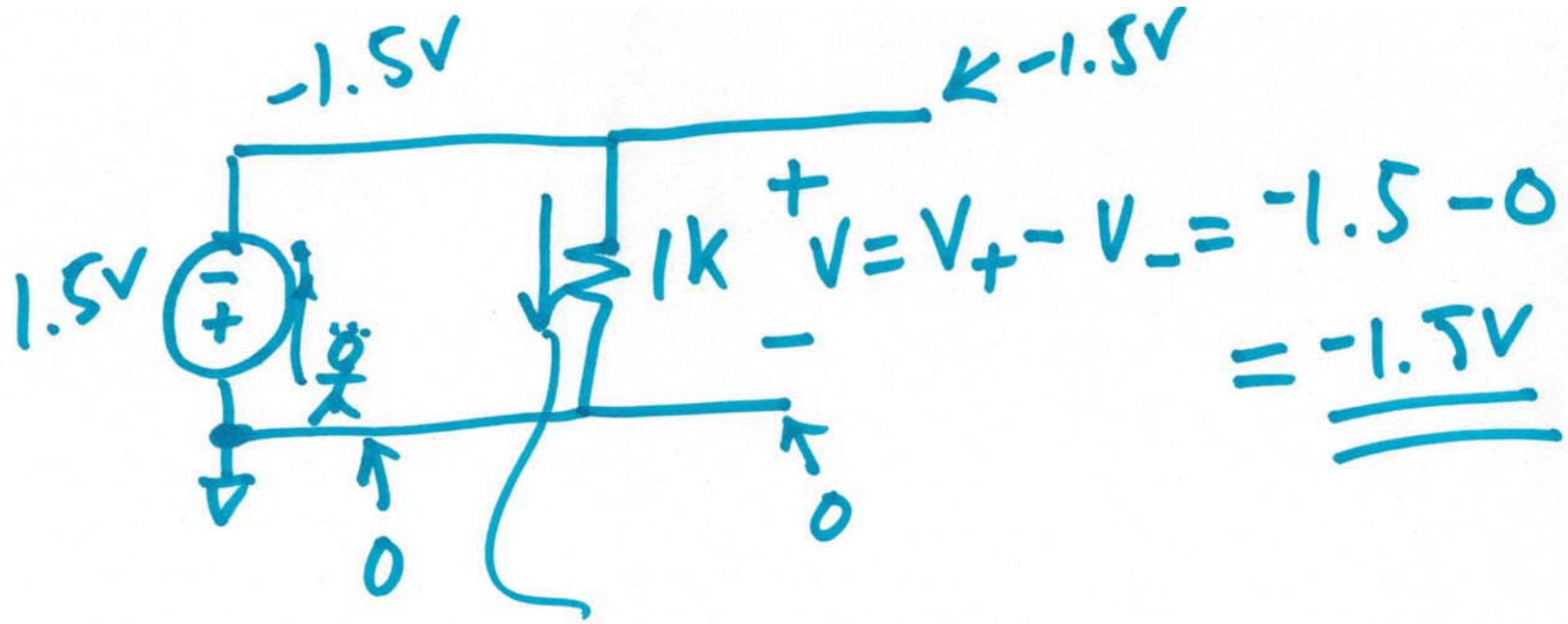
$$V = (-I) \cdot R$$

4)





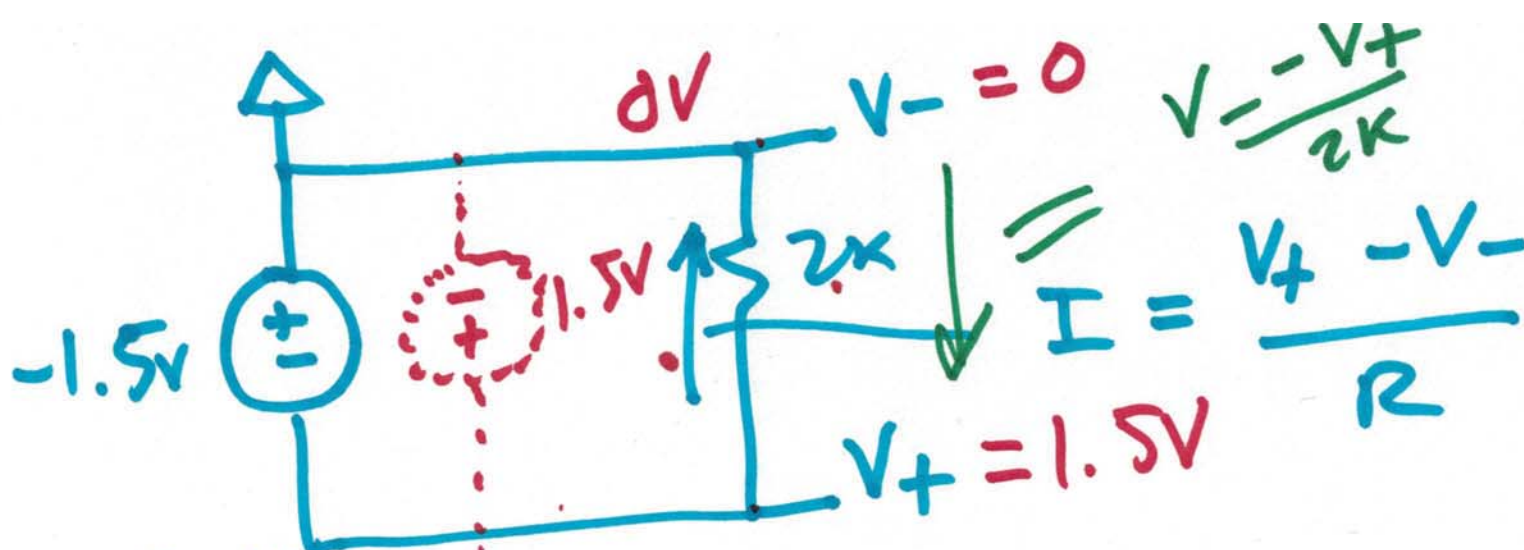
5)



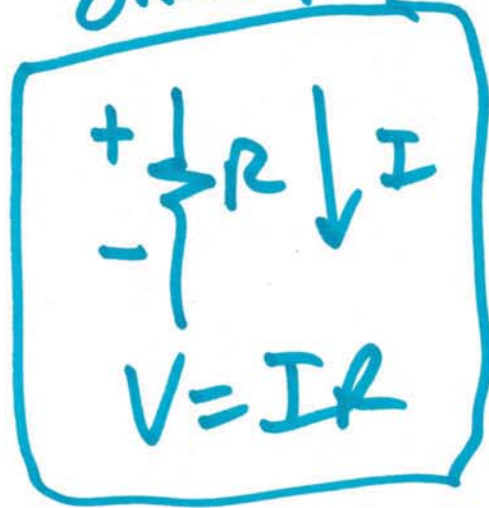
$$V = I \cdot R$$

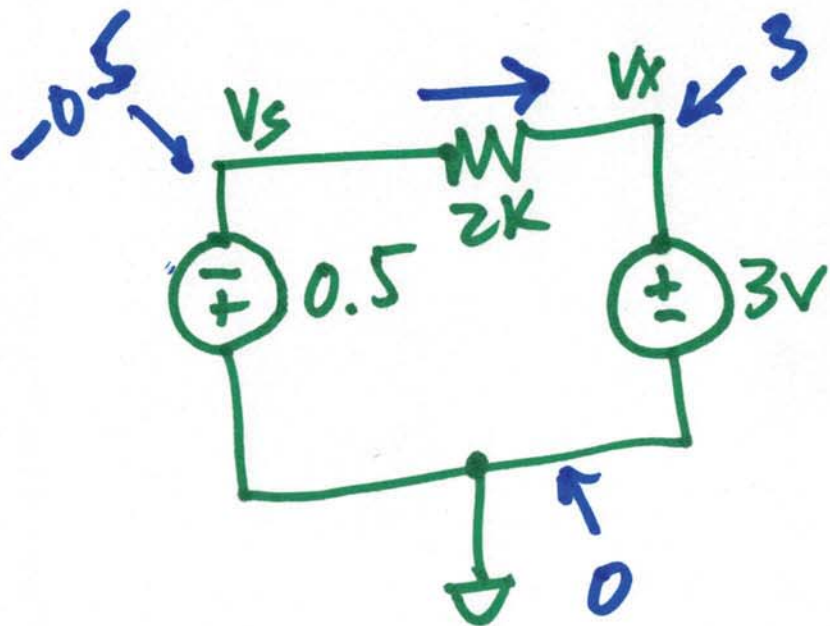
$$-1.5V = I \cdot R \quad 1k$$

$$I = -1.5 \mu A$$

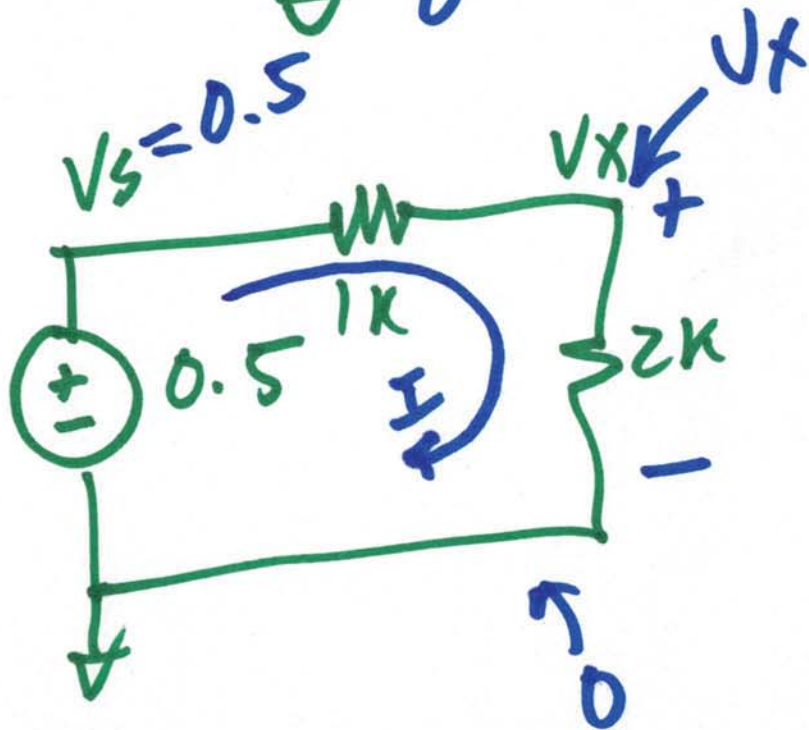


Ohm's law





$$I = \frac{-0.5 - 3}{2k}$$



$$I = \frac{0.5}{1k + 2k}$$

$$I = \frac{V_s - V_x}{1k} = \frac{V_x - 0}{2k}$$

Voltage divider