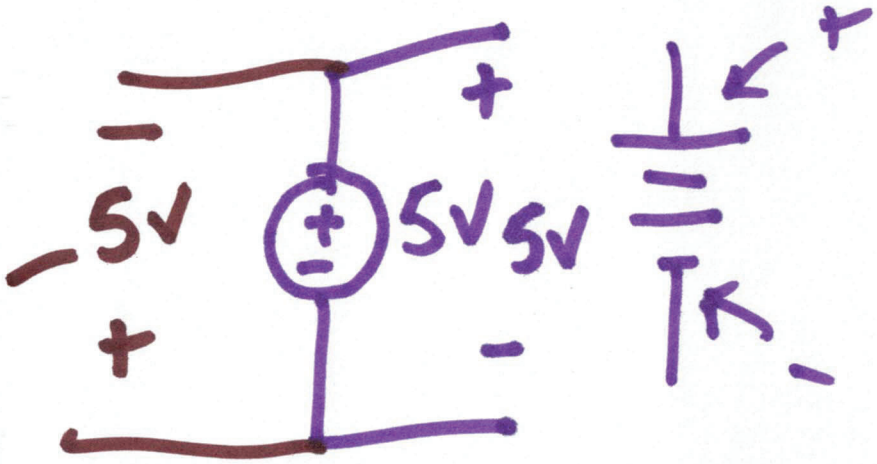
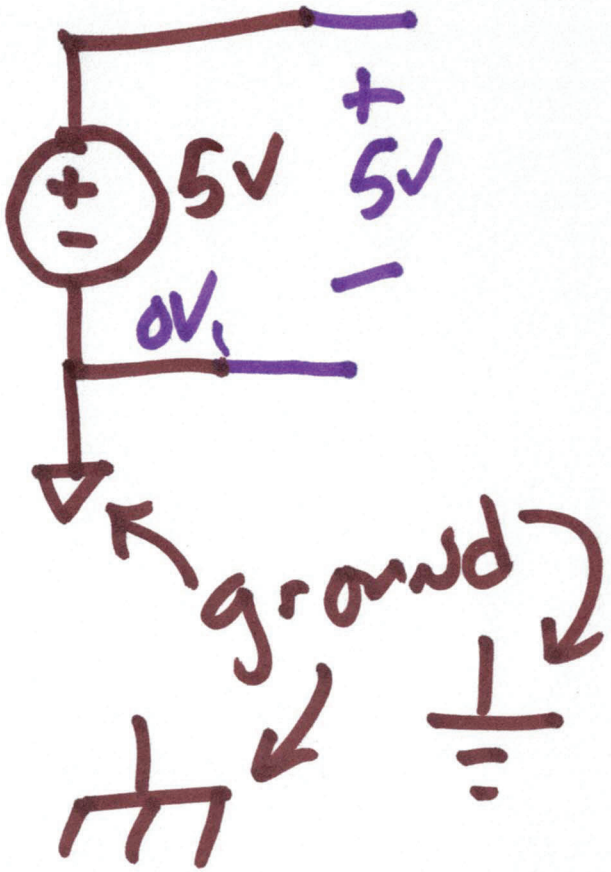
EE 220 Circuits I

Aug. 29, 2022

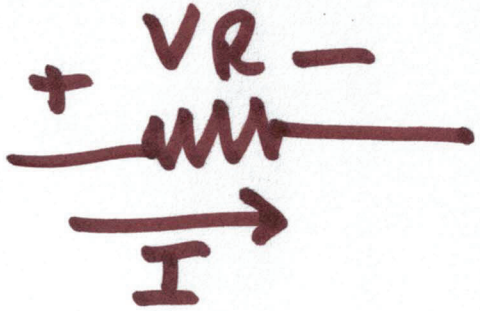
Lecture 1



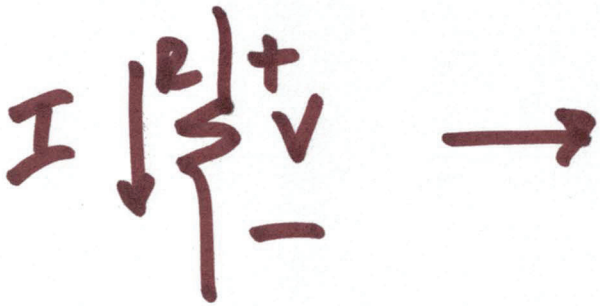

+
5V
5V
−
0V
ground


+5V
5V
-5V

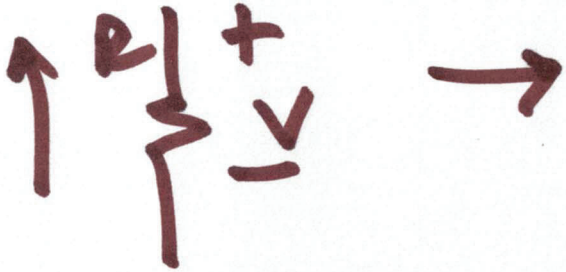
Ohm's Law



$V = I \cdot R$



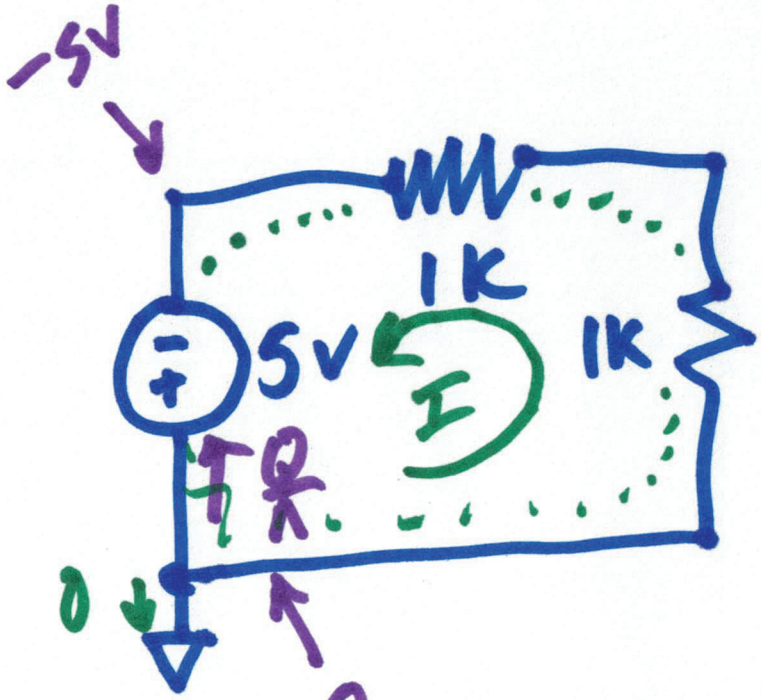
$\rightarrow V = I \cdot R$

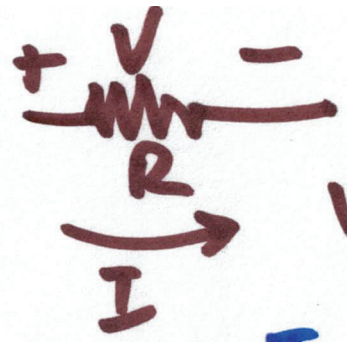


$\rightarrow V = (-I) \cdot R$

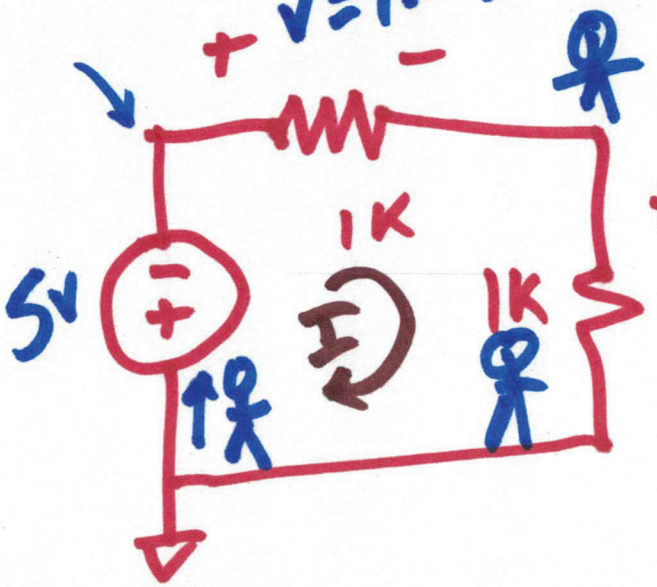
$= -IR$

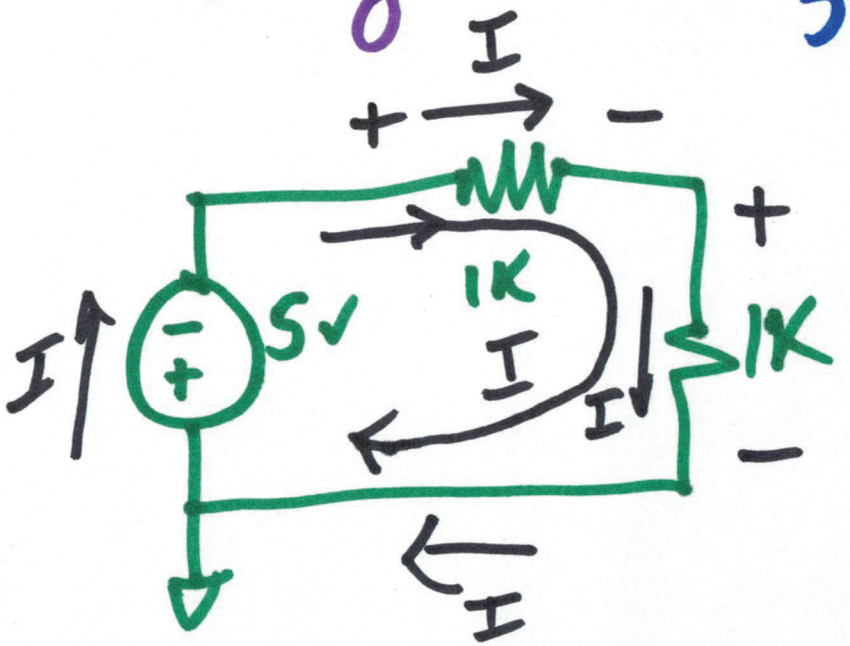
$= I \cdot (-R)$





$V = I \cdot R$



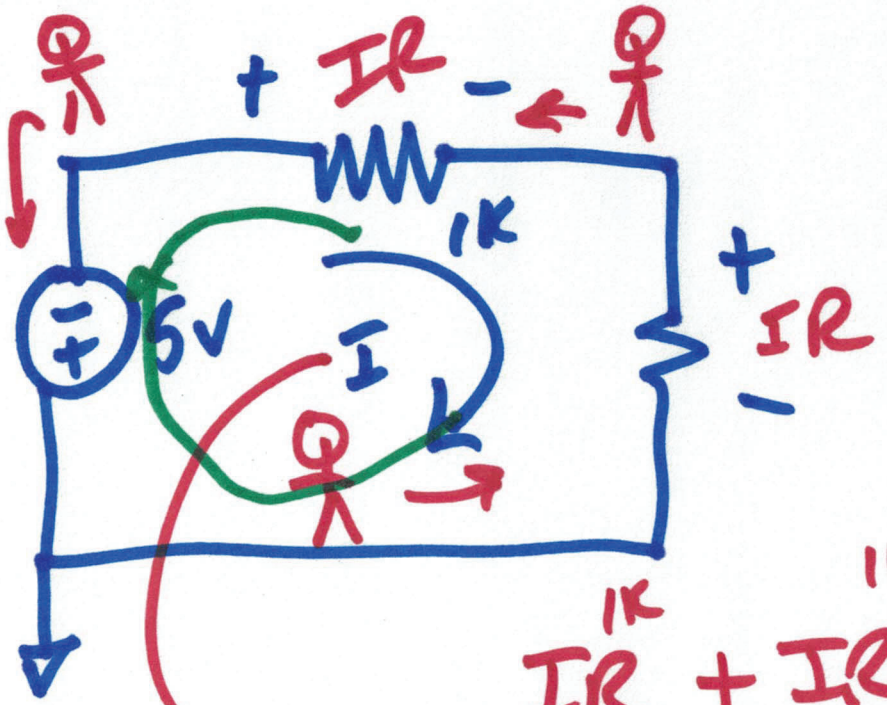


$$-5V - 1K \cdot I - 1K \cdot I = 0$$

$$I = \text{Amps} = \frac{\text{coulombs}}{s}$$

V = Volts

R = Ohms Ω



$V = I \cdot R$

$IR_{1K} + IR_{1K} + 5V = 0$

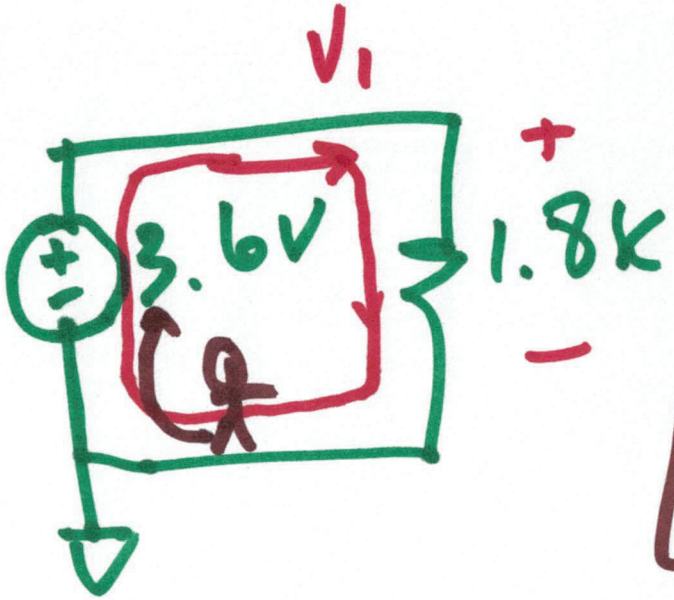
$5V = -2K \cdot I$

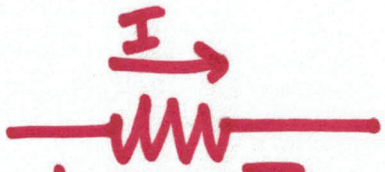
$I = -2.5mA$

$I = -\frac{5}{2K} = -2.5mA$

$7{,}000$
$2K$

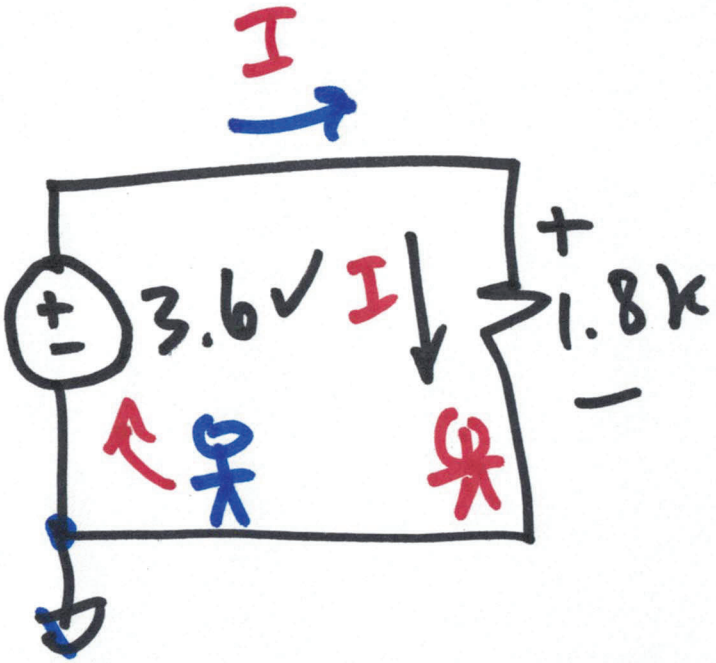
$K = 10^3$
1000





$V_1 = 3.6V$

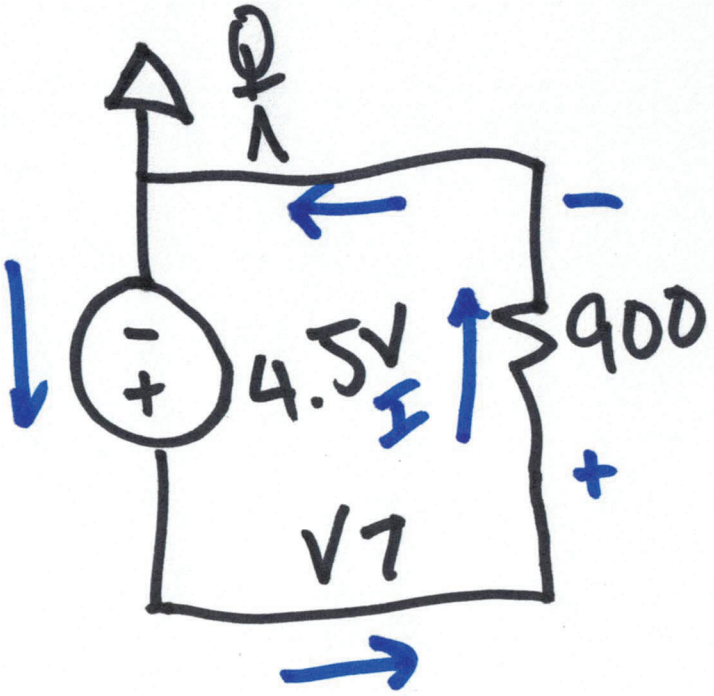
$\frac{1}{k} = \frac{1}{10^3} = 10^{-3} = m$



$3.6 - I \cdot 1.8k = 0$

$I = \frac{3.6}{1.8}\ mA$

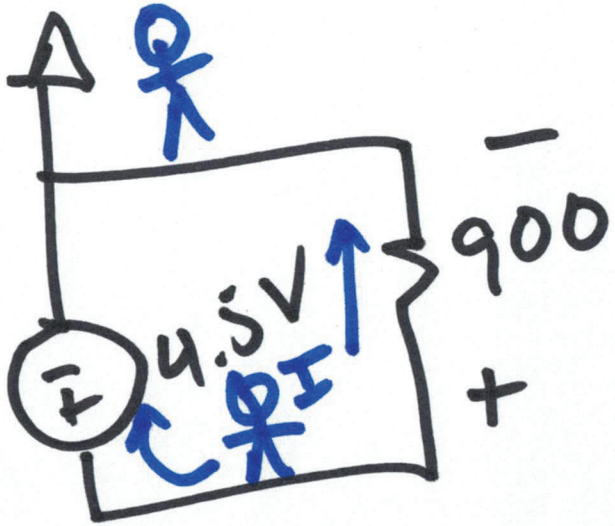
$I = 2mA$

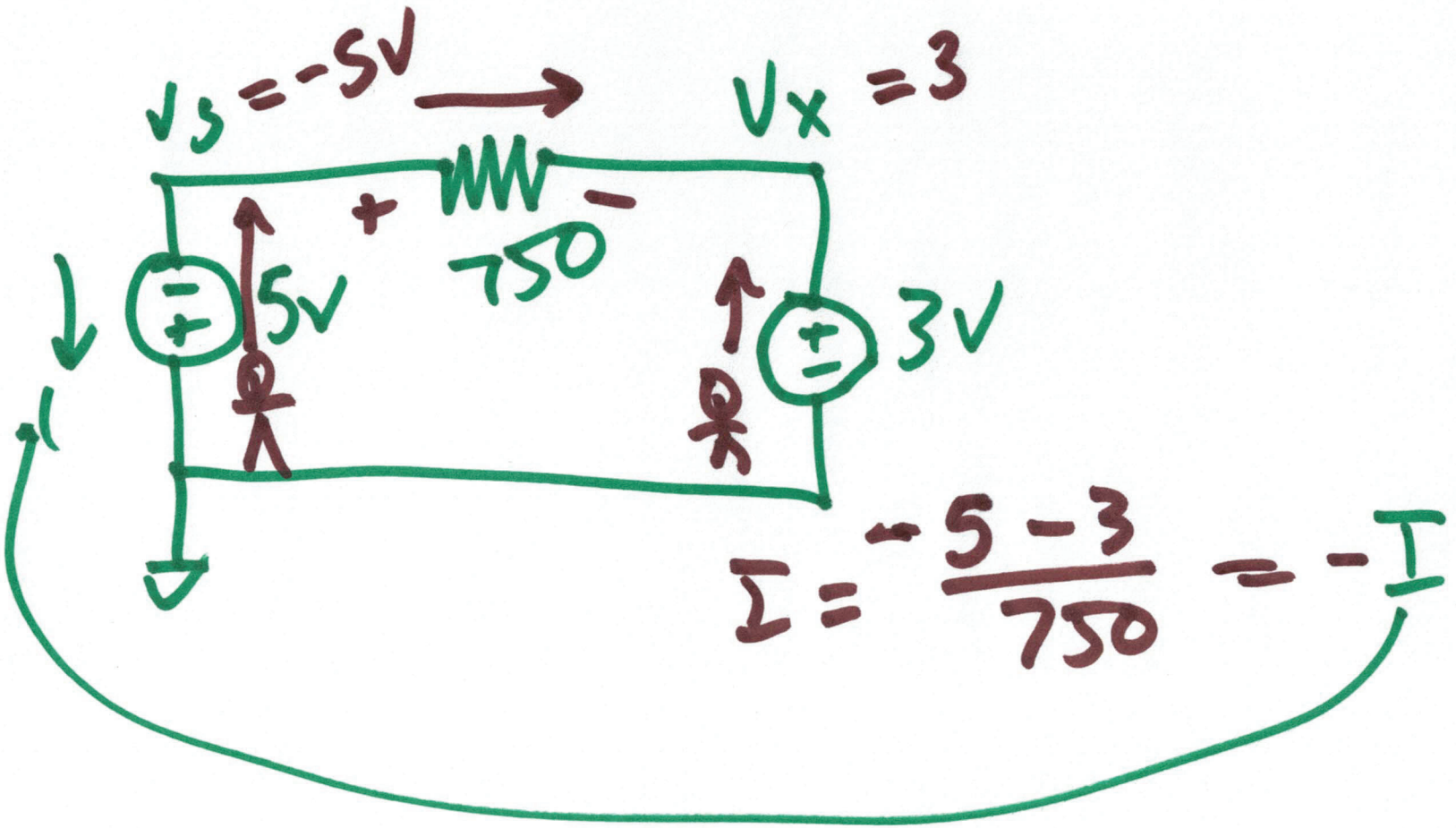


$$V_7 = +4.5\,V$$

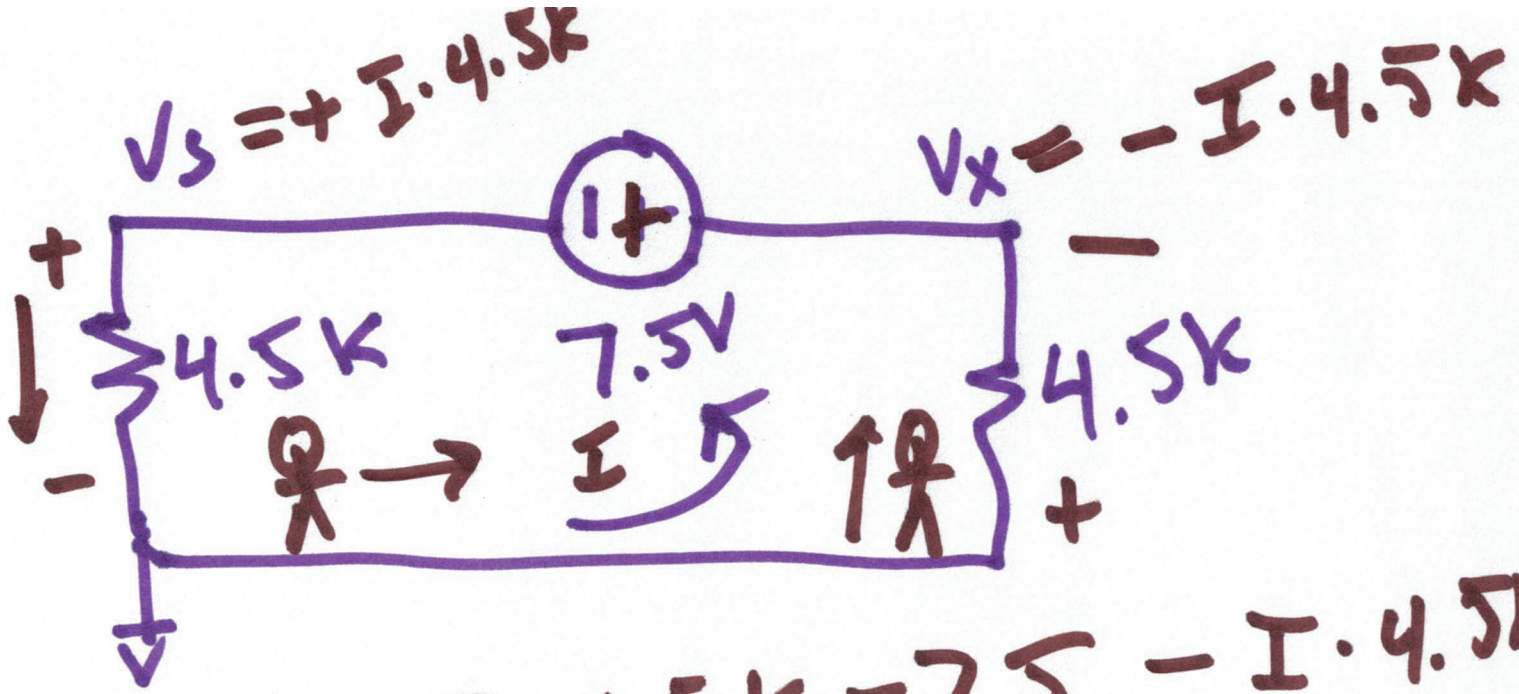
$$+900 \cdot I - 4.5 = 0$$

$$I = \frac{4.5}{900} = 5\,mA$$





b)



$$0 = -I \cdot 4.5k - 7.5 - I \cdot 4.5k$$

$$I =$$