

EE 221 circuits II

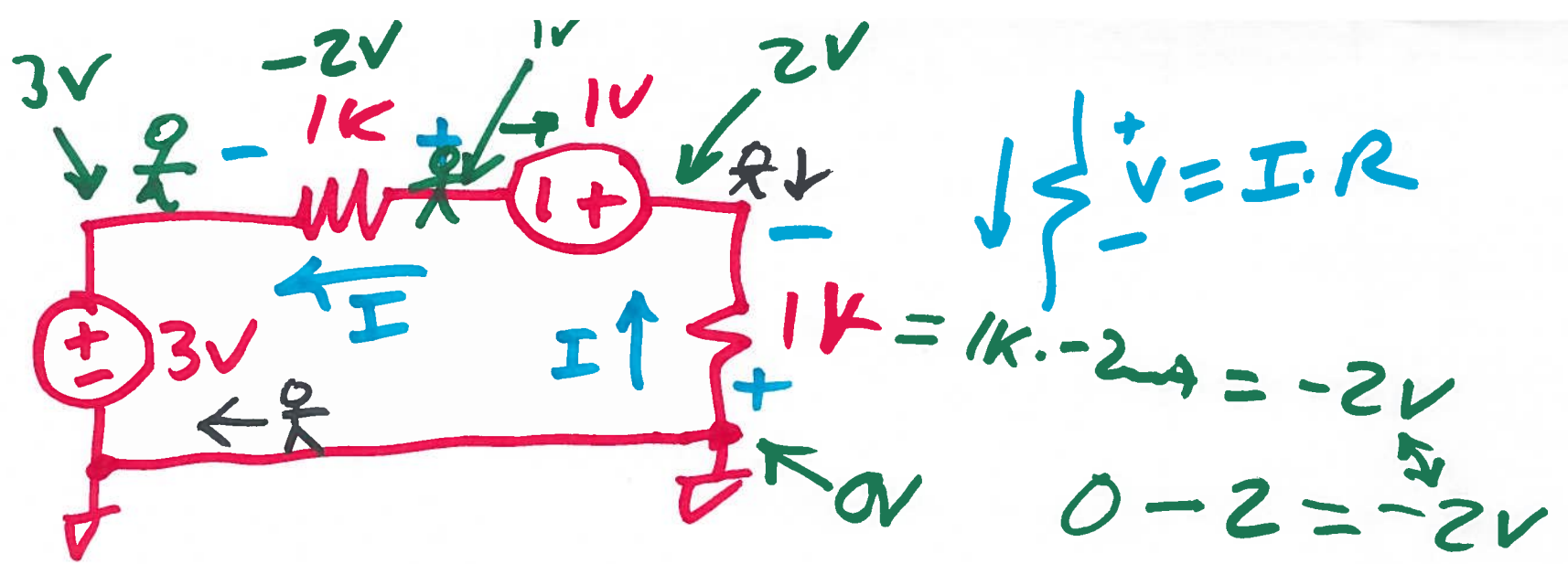
Jan. 23, 2019

Lecture 1

Ohm's law

$$I \downarrow \left\{ \begin{array}{l} + \\ - \end{array} \right. v = I \cdot R \quad I \uparrow \left\{ \begin{array}{l} + \\ - \end{array} \right. v = -I \cdot R$$

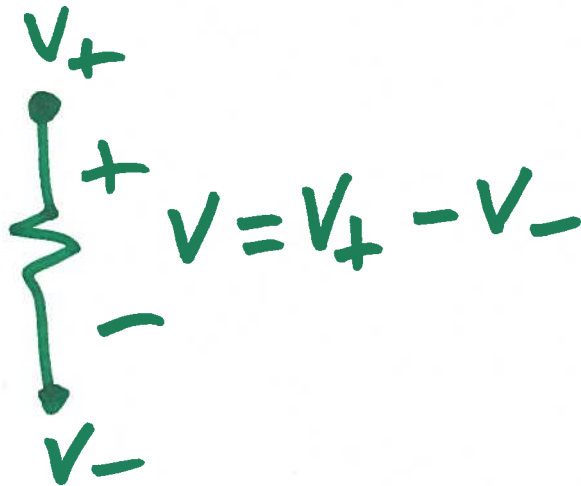
$$I \downarrow \left\{ \begin{array}{l} - \\ + \end{array} \right. v = -I \cdot R \quad I \uparrow \left\{ \begin{array}{l} - \\ + \end{array} \right. v = I \cdot R$$



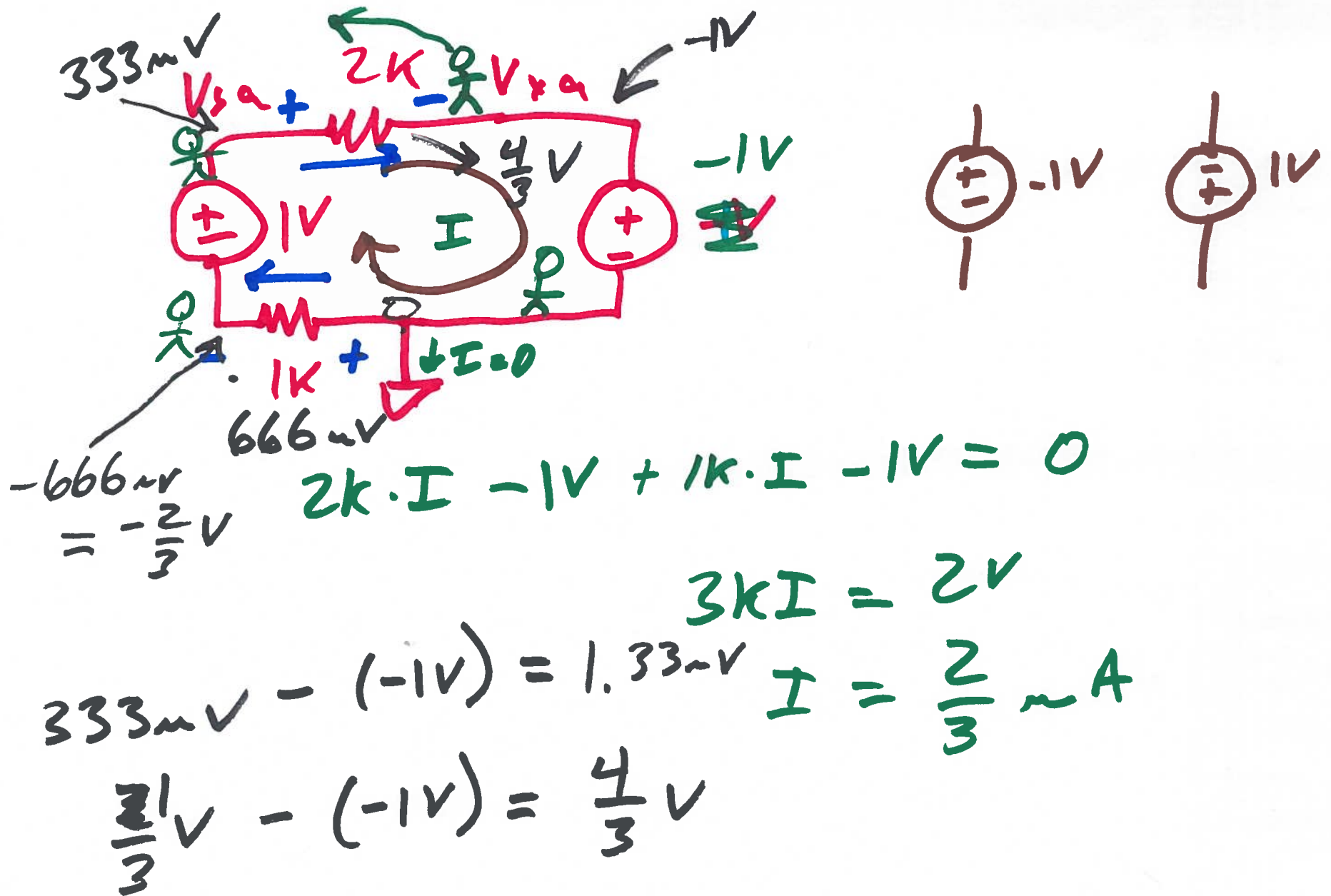
$$3V + 1k \cdot I + 1V + 1kI = 0$$

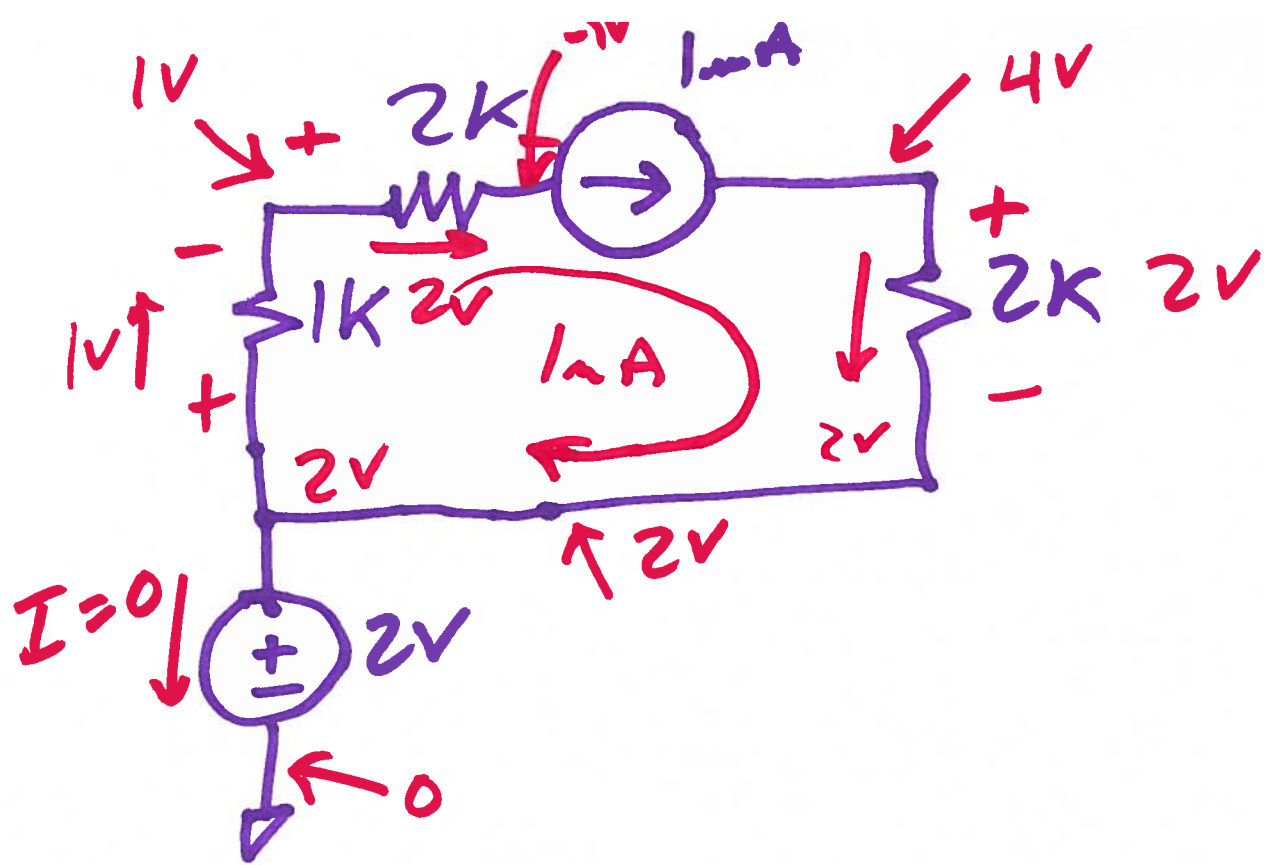
$$4V = -2k \cdot I$$

$$I = \frac{-4}{2k} = -2mA$$

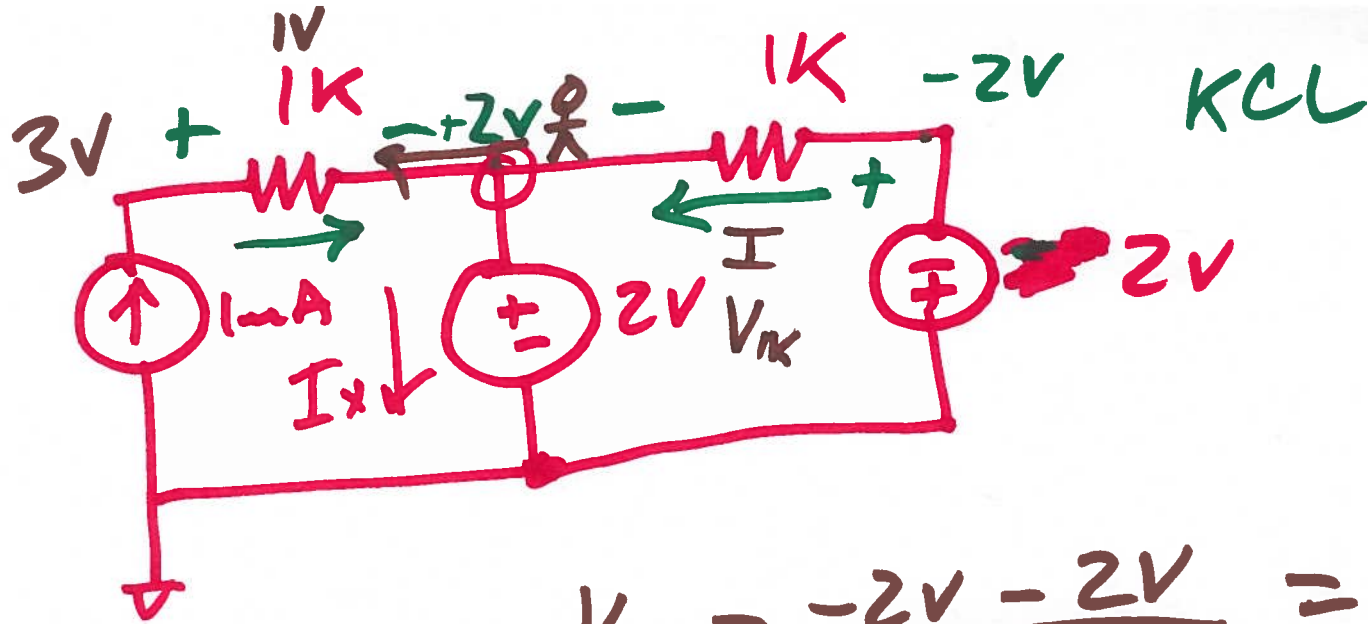


2)





4)



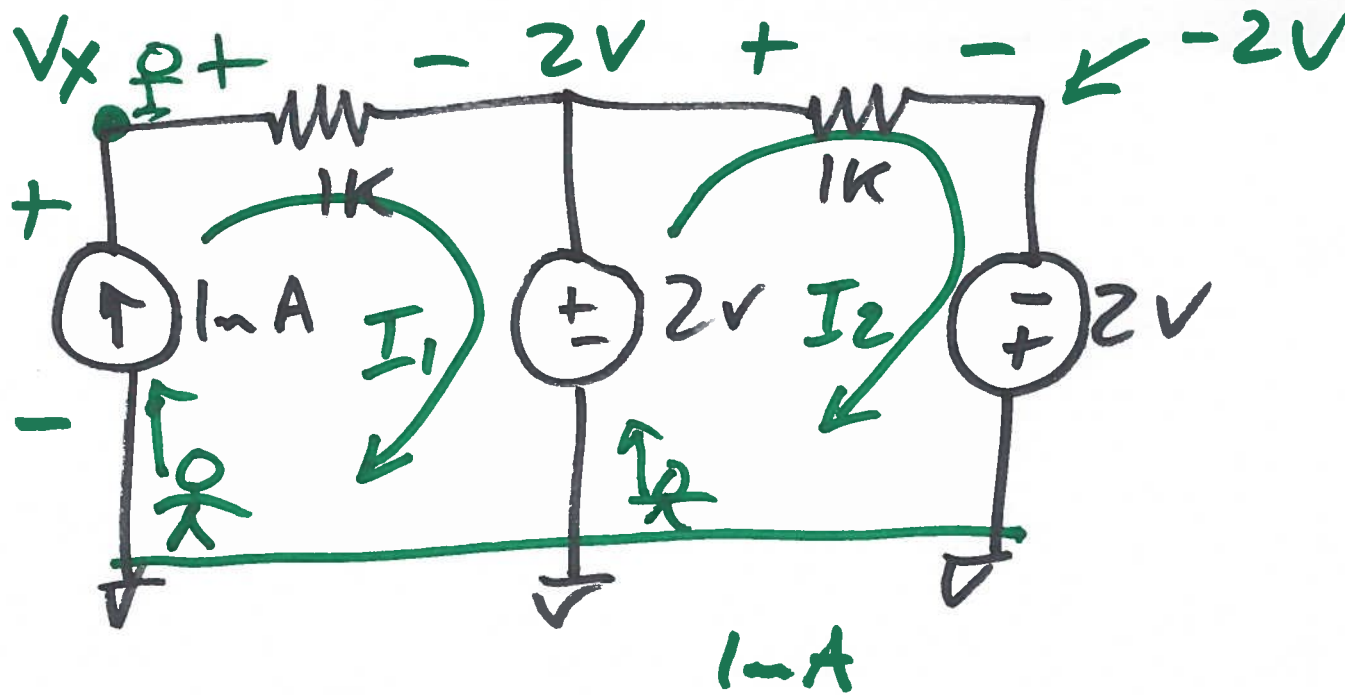
$$V_{ik} = \frac{-2V - 2V}{1k} = -4V$$

$$I = \frac{-4}{1k} = -4\mu A$$

KCL:

$$I_x = 1\mu A + (-4\mu A)$$

$$= \underline{\underline{-3\mu A}}$$



$$V_x - \cancel{I_1} \cdot 1K - 2V = 0, V_x = 3V$$

$$2 - 1K \cdot I_2 + 2V = 0, I_2 = 4mA$$

~~V~~

b)