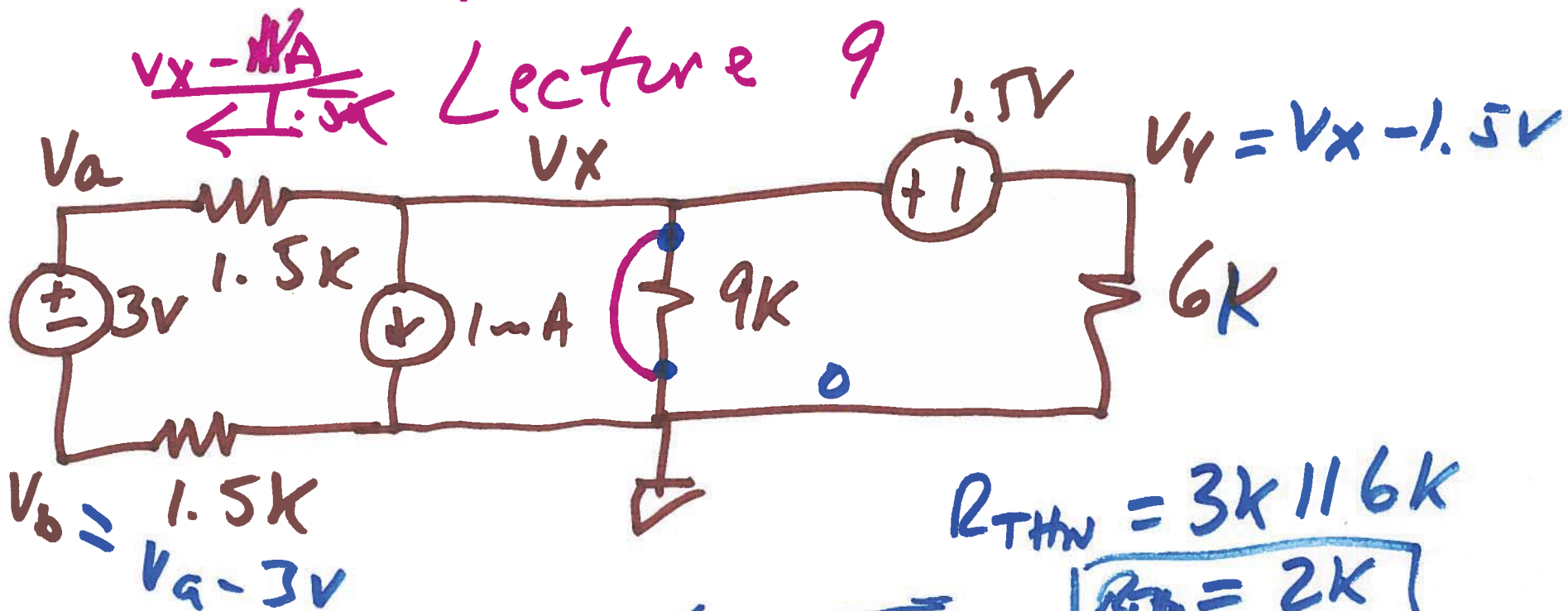


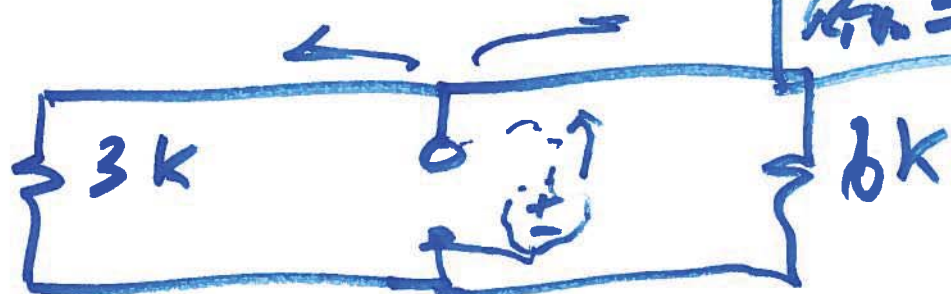
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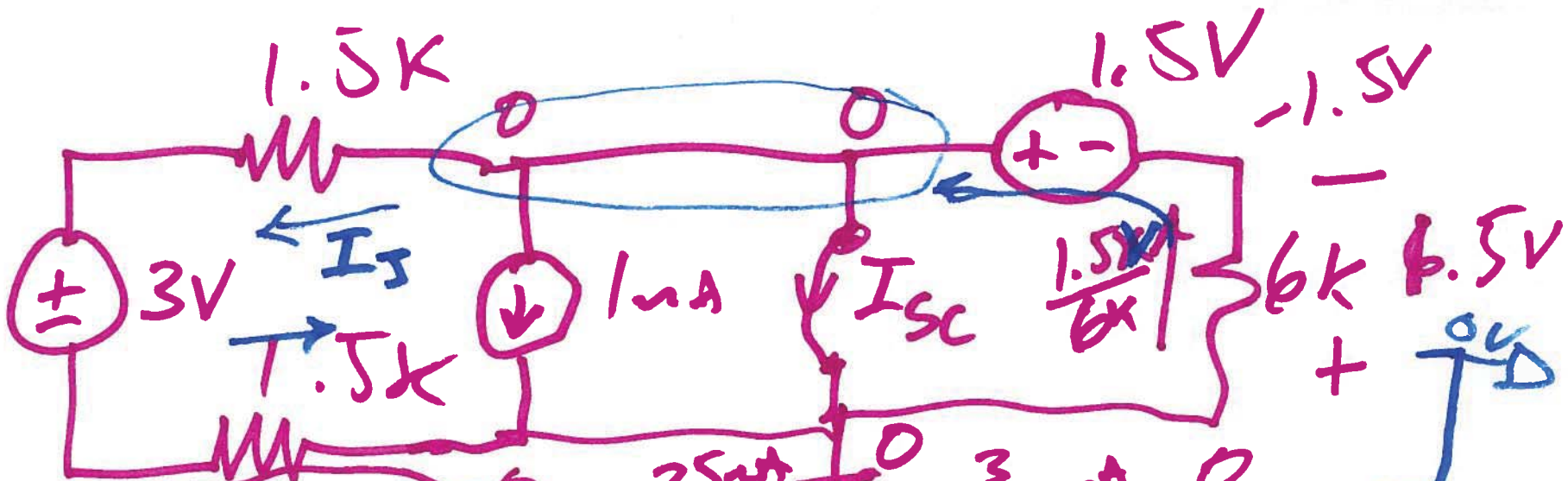
Lecture 9



$R_{TH} = 3k \parallel 6k$
 $R_{TH} = 2k$



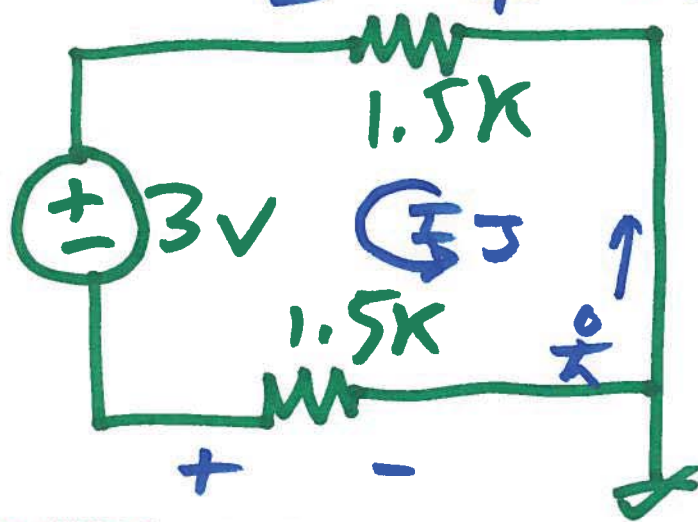
1)



$I_{sc} = 0.25 \mu A$

$I_J + 1 \mu A + I_{sc} = \frac{1.5V}{6k}$

$\frac{1.5V}{6k} = \frac{3}{12} \mu A = 0.25 \mu A$



$\frac{3}{12} \mu A = 0.25 \mu A$

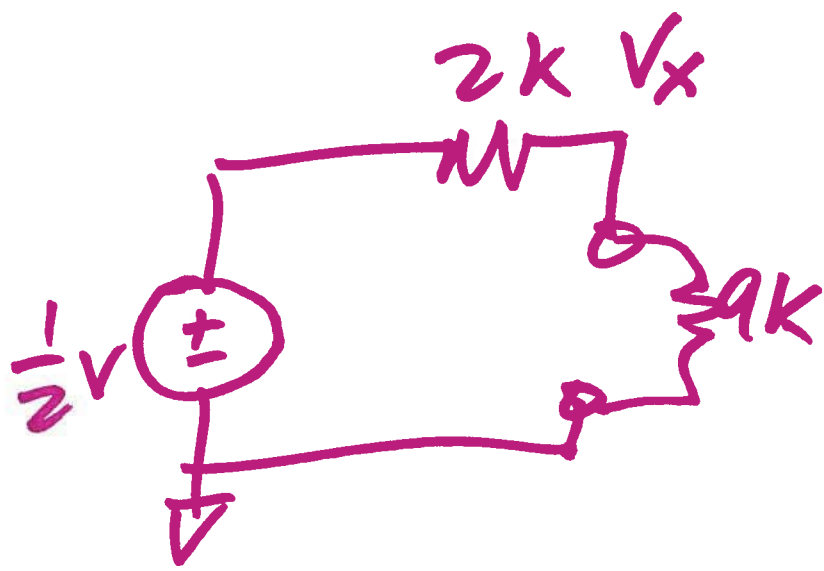
$-I_J \cdot 1.5k - 3V - I_J \cdot 1.5k = 0$

$I_J = -1 \mu A$

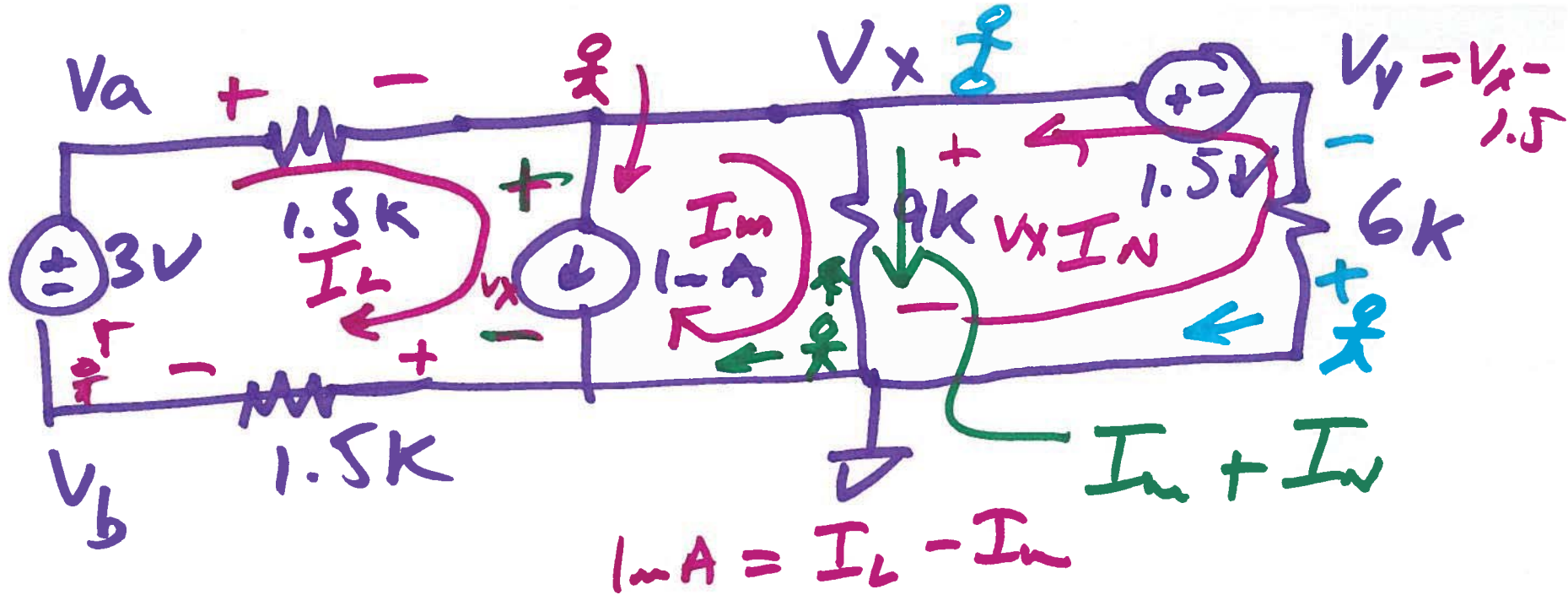
2)

$$R_{ThN} = 2k \quad I_{sc} = 250 \mu A = I_N$$

$$V_{ThN} = I_{sc} \cdot R_{ThN} = 500 \mu V = \frac{1}{2} V$$



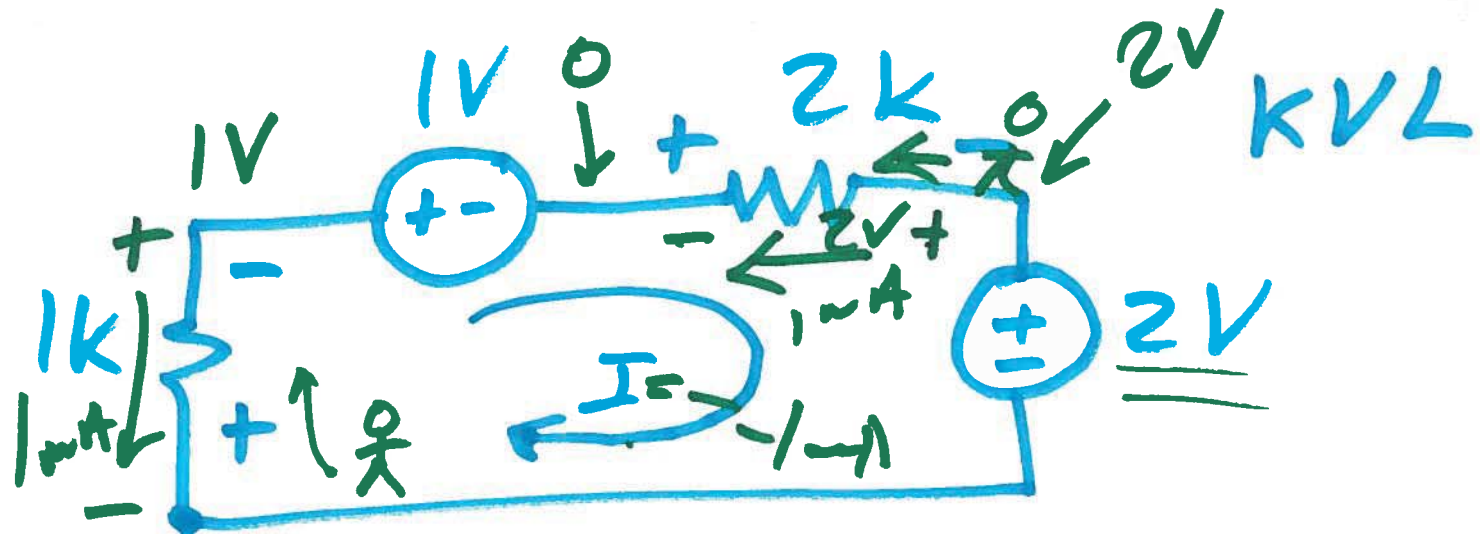
$$V_x = \frac{1}{2} V \cdot \frac{9k}{2k + 9k} = \frac{9}{22} V = \underline{\underline{.44V}}$$



$$-V_x - I_L \cdot 1.5\text{k} + 3\text{V} - I_L \cdot 1.5\text{k} = 0$$

$$+V_x - (I_m \cdot 9\text{k} = 0 = V_x \Rightarrow (I_m + I_N) \cdot 9\text{k}$$

$$+9\text{k}(I_m + I_N) - 1.5\text{V} + 6\text{k} \cdot I_N = 0$$

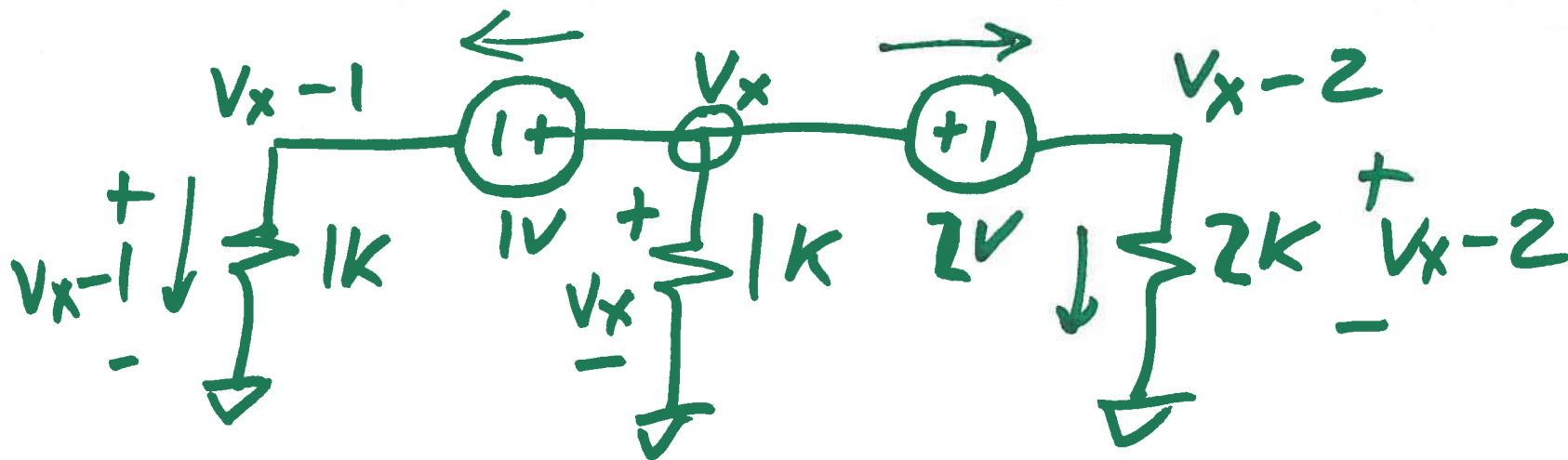


$$-I \cdot 1k - 1V - 2k \cdot I - 2V = 0$$

$$-3kI = 3V$$

$$I = -1A$$

5)

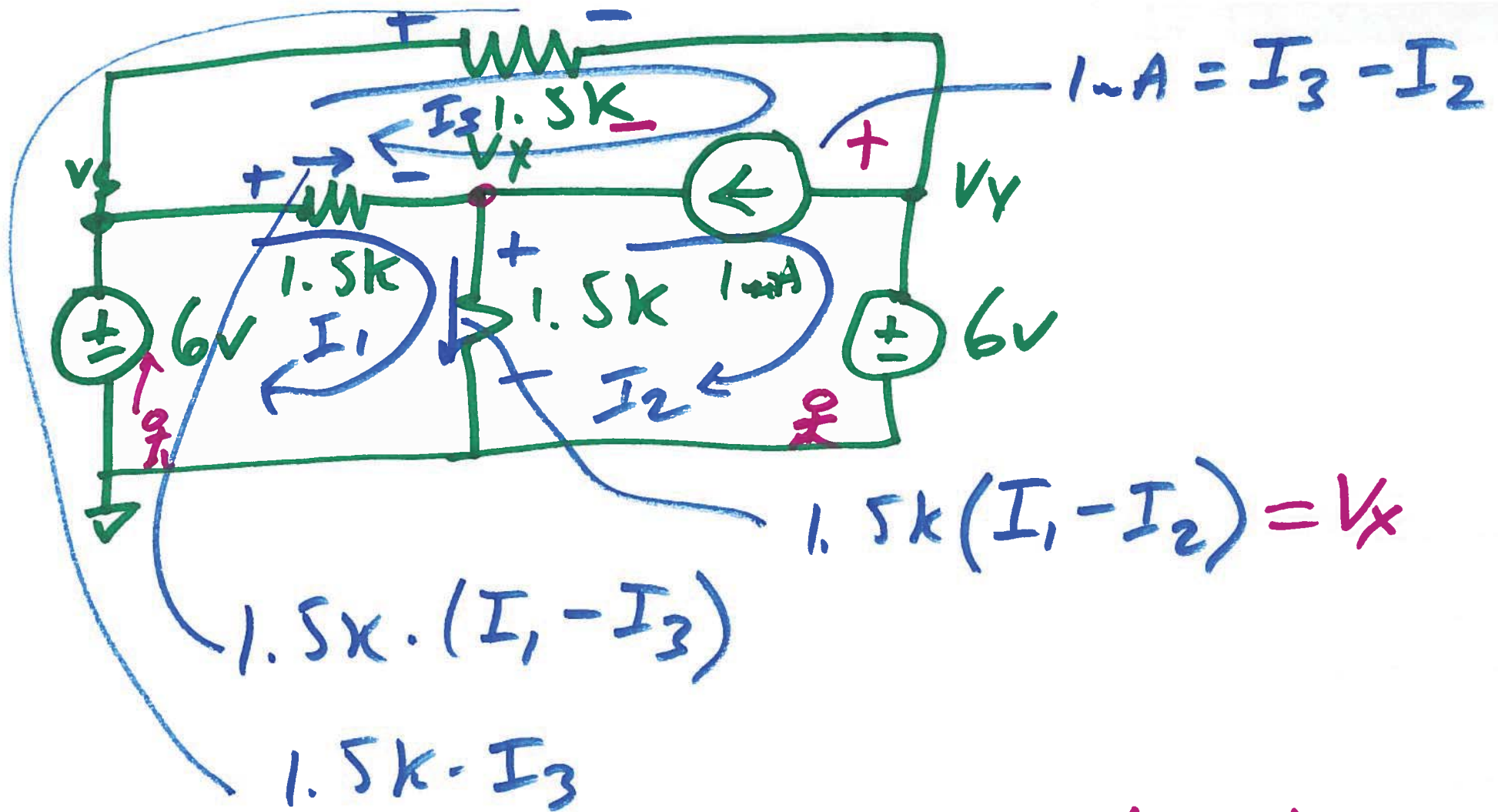


$$\frac{V_x}{1k} + \frac{V_x - 1}{1k} + \frac{V_x - 2}{2k} = 0$$

$$2V_x + 2V_x - 2 + V_x - 2 = 0$$

$$5V_x = 4$$

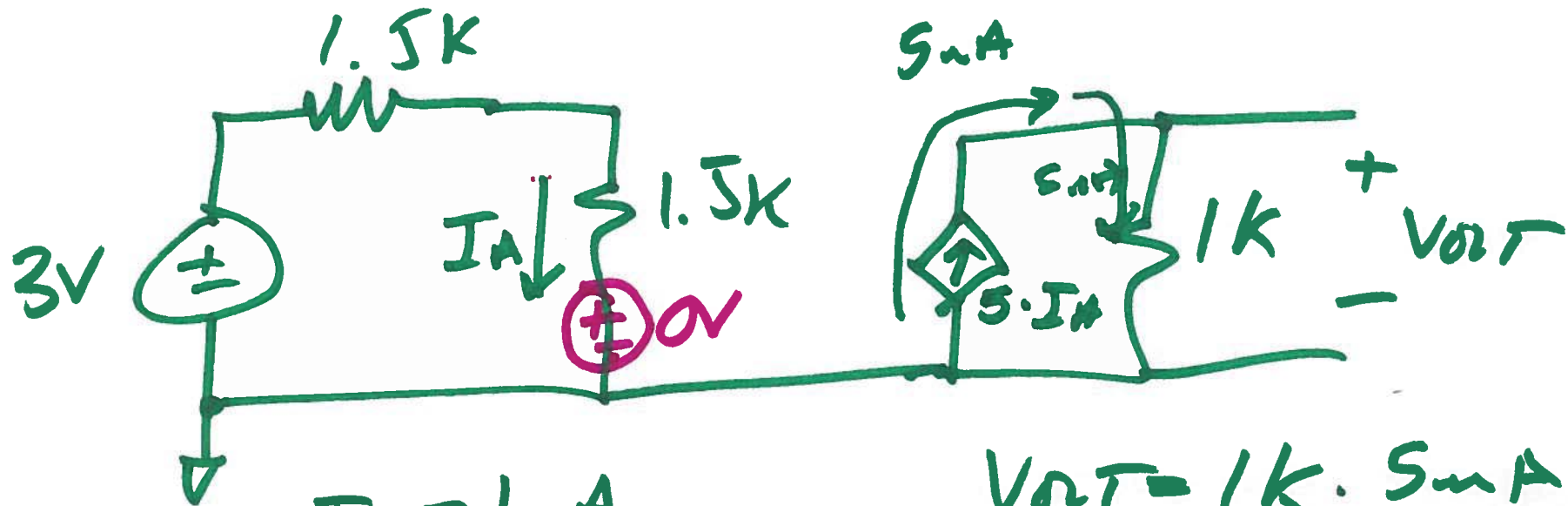
$$V_x = 0.8V$$



$$6V - 1.5k(I_1 - I_3) - 1.5k \cdot (I_1 - I_2) = 0$$

$$V_y = 6V$$

Current dependent current source



$$I_A = 1 \mu A$$

$$V_{OLT} = 1k \cdot 5 \mu A$$

positive current flow + to minus

$$V_{OLT} = 5V$$