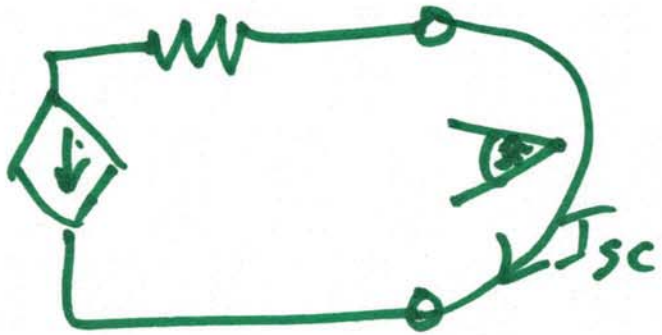
EE 220

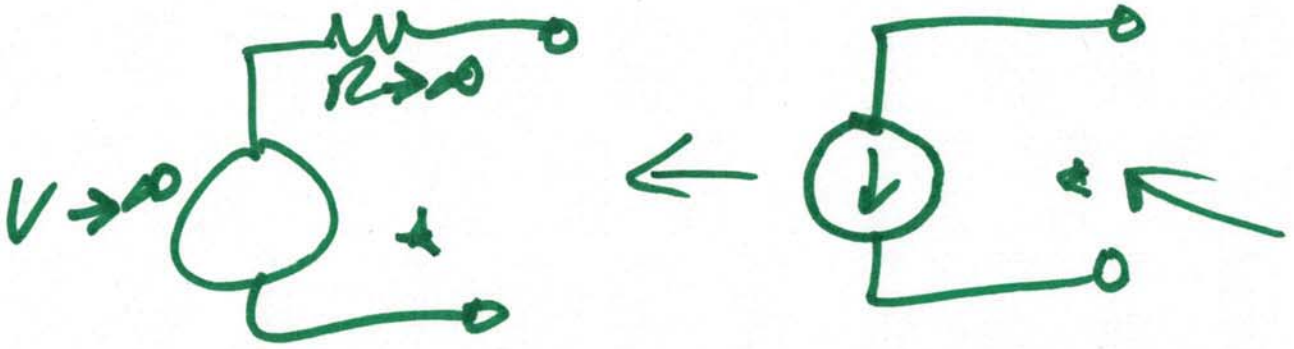
Circuits 1

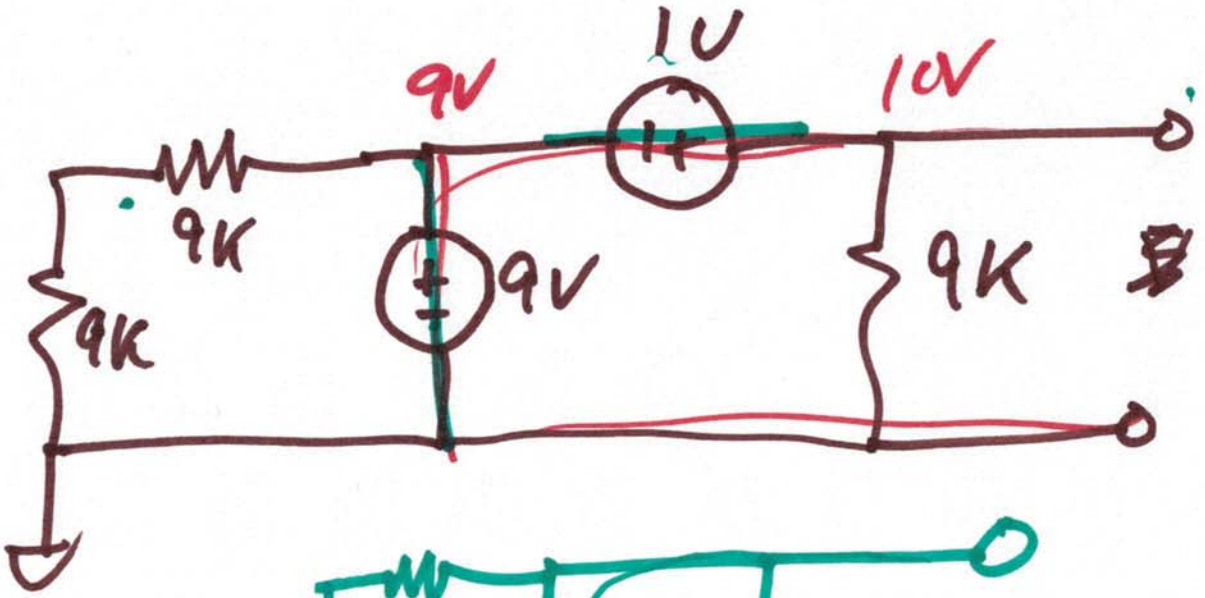
Lecture 13



$R_{TH} = \infty$

$I_{SC} = I_N$

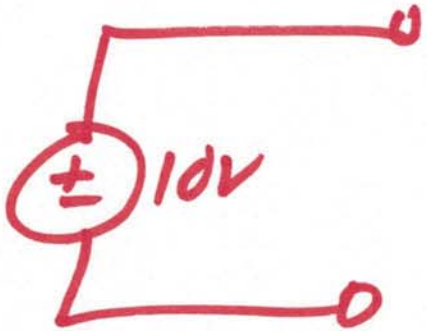


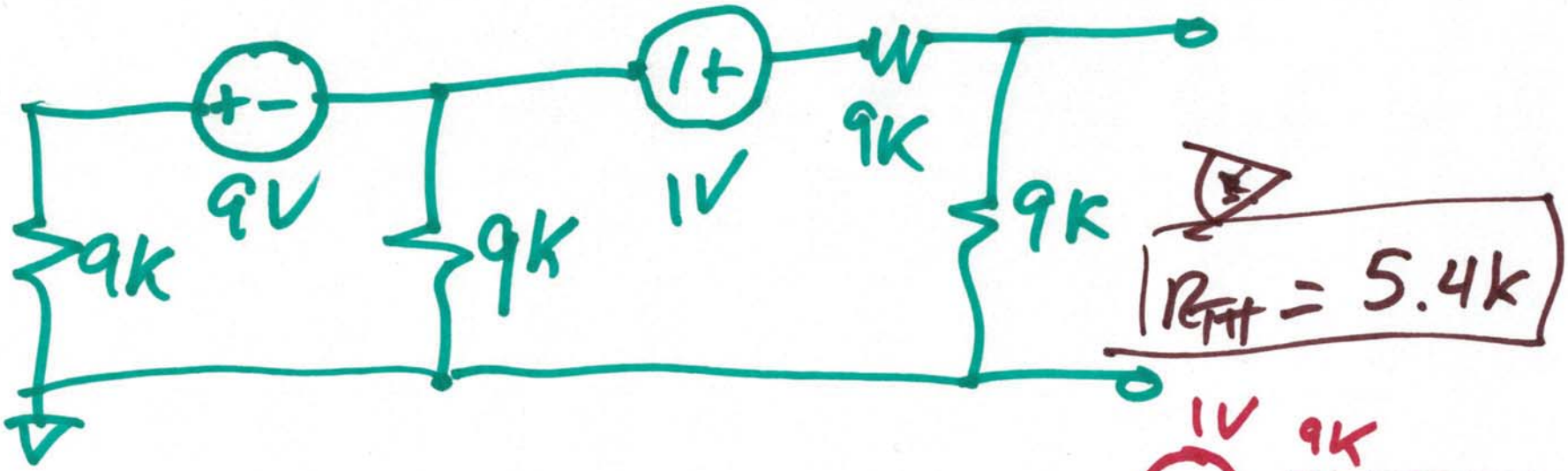


find Thevenin equiv.

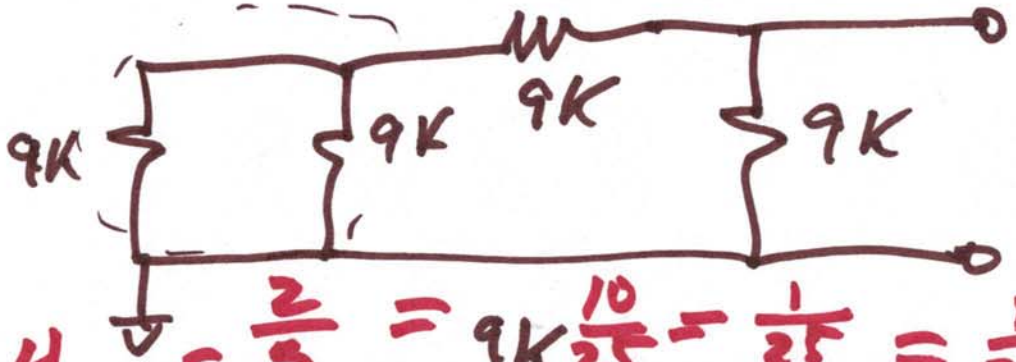
$V_{TH} = 10V$

$R_{TH} = 0$

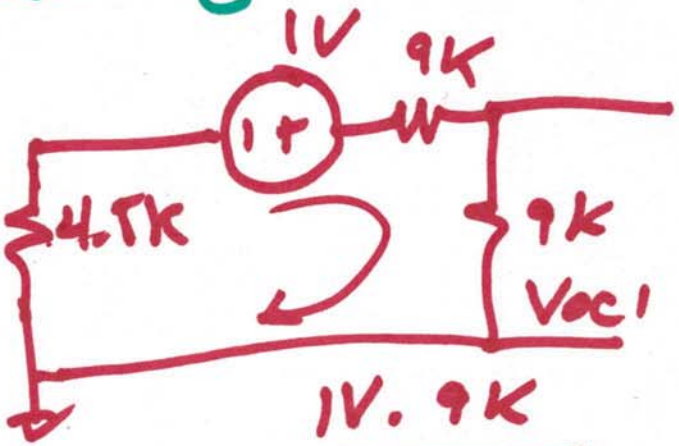




$R_{TH} = 5.4k$



$= \frac{2}{5} = 9K\frac{10}{25} = \frac{1}{2.5}$

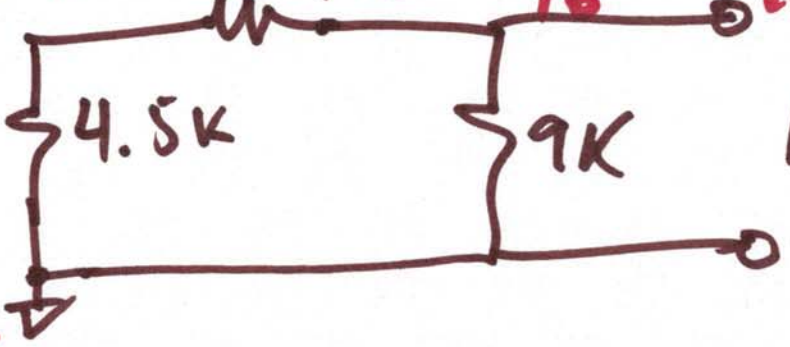


$= V_{oc1} = \frac{1V \cdot 9K}{9K+9K+4.5K}$

$\frac{4}{10}$

$= 0.4$

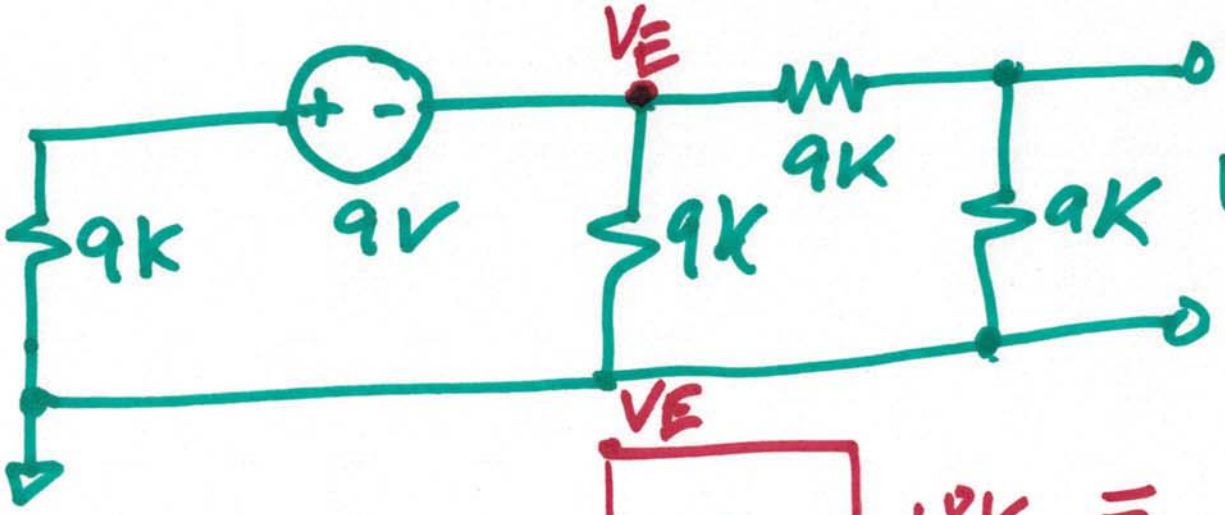
$= 400mV$



$R_{TH} = 9K \,||\, 13.5k$

$= \frac{9K \cdot 3 \cdot 4.5k}{9k + 3 \cdot 4.5k}$

$5.4k = \frac{27K}{2+3}$



$V_{OC2} = \frac{V_E}{2}$

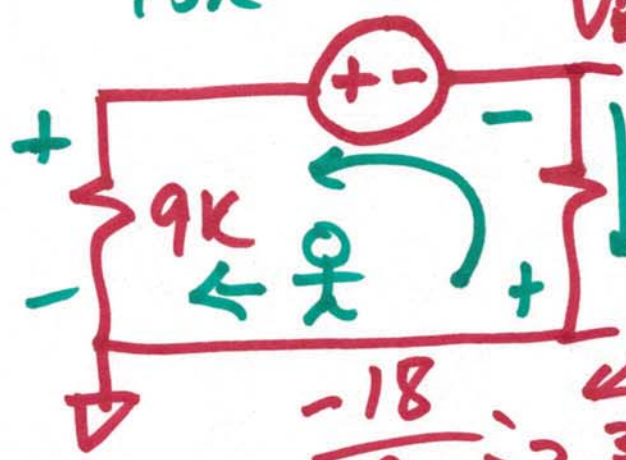
$18K = 9K \parallel 18K$

$9K \cdot I - 9V + 6K\,I = 0$

$\frac{9K \cdot 18K}{9K + 18K}$

$I = \frac{9}{15K}$ 9V

$V_E = \frac{-9.6K}{6K+9K}$ $= \frac{18K}{1+2}$



$= \frac{-9.2}{2+3}$ $= 6K$

$\frac{-18}{5} = -3\frac{3}{5} = -3.6V$, $V_{CC2} = -1.8V$

$= -3\frac{6}{10}$

$-1.4V = V_{THN} = 400mV - 1.8V$

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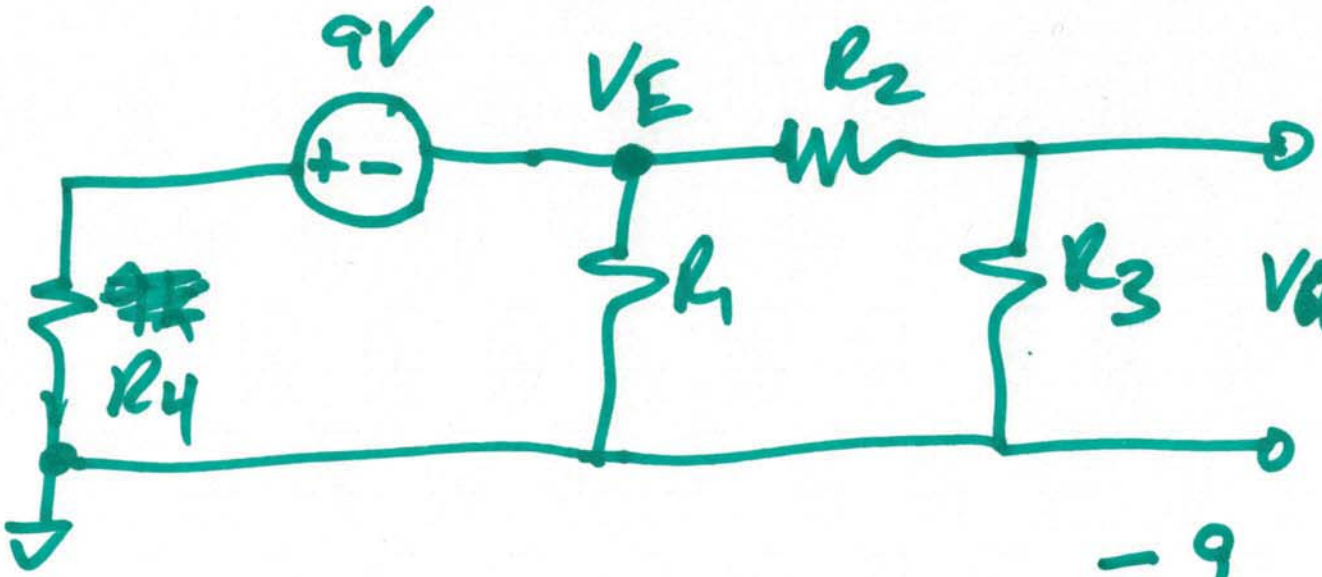
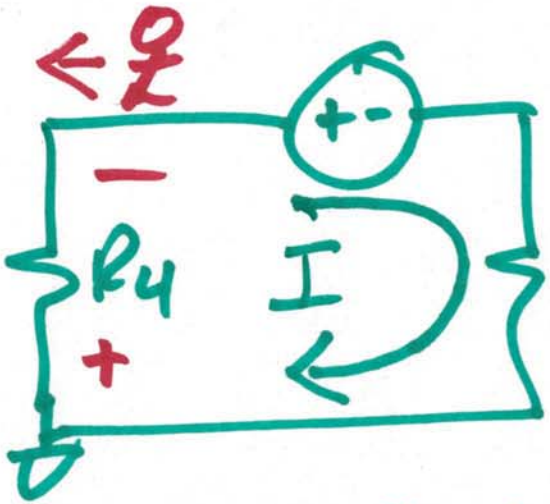


$$V_E = \frac{R_3}{R_3 + R_2} \cdot V_E$$

9K

$$I = \frac{-9}{R_4 + \dfrac{R_1 \cdot (R_2 + R_3)}{R_1 + R_2 + R_3}}$$

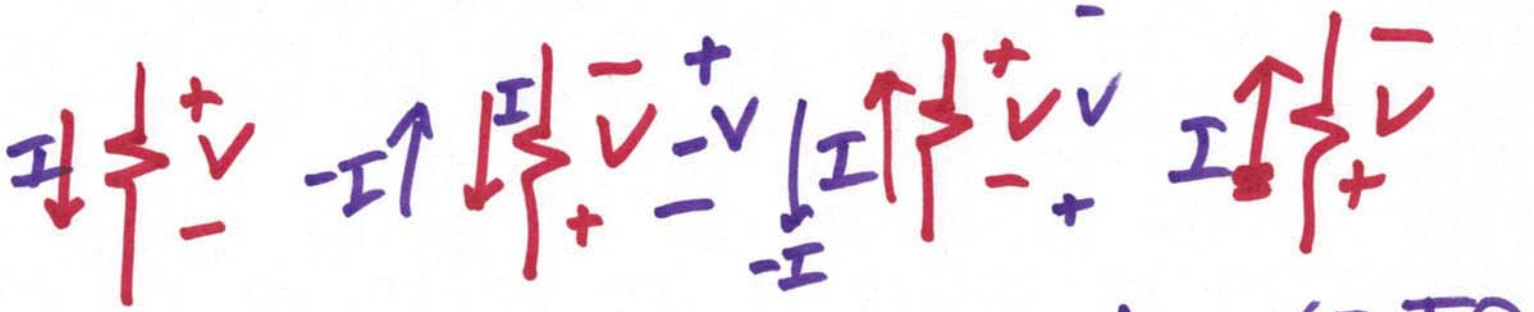


$$\frac{R_1 \cdot (R_2 + R_3)}{R_1 + R_2 + R_3}$$

$$R_4 \cdot I + I(\quad) + 9 = 0$$

$$I = \frac{-9}{R_4 + (\quad)}$$

KNOW ohm's law



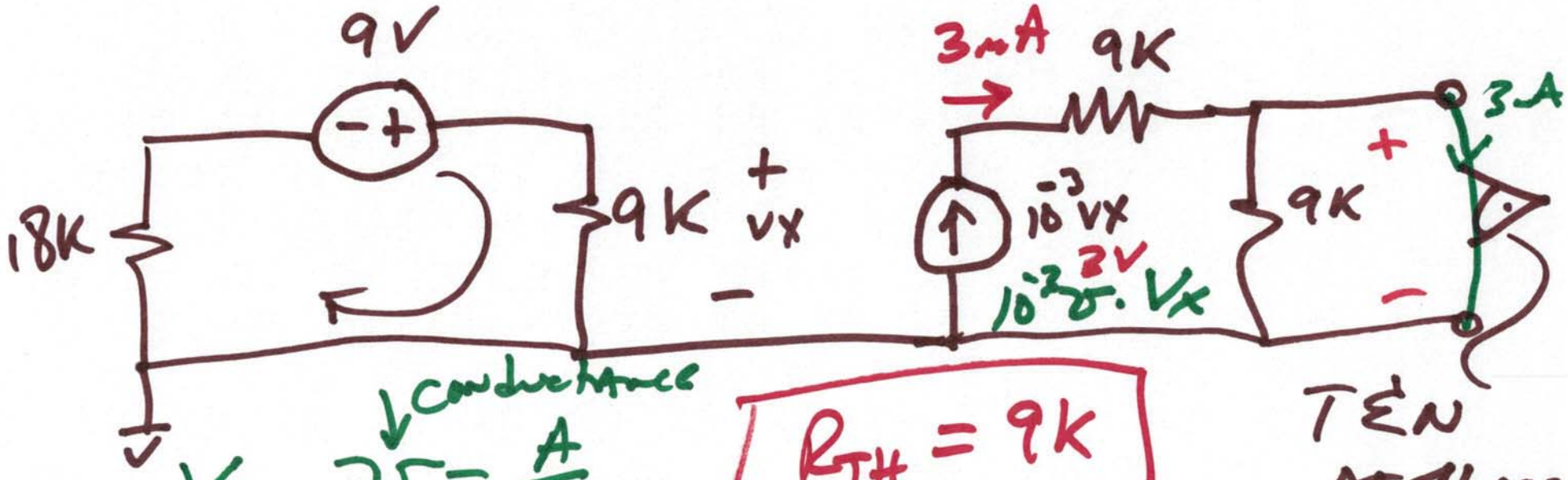
$V = IR$ $V = (-I) \cdot R$ $-V = I \cdot R$ $V = (-I)R$ $-V = IR$ $V = IR$

KVL MESH

KCL superposition

Thevenin/Norton, Dependent sources

power



conductance

$\Omega = \frac{V}{A}$ $\quad \mho = \frac{A}{V}$

$R_{TH} = 9K$

TEN AT These two terms

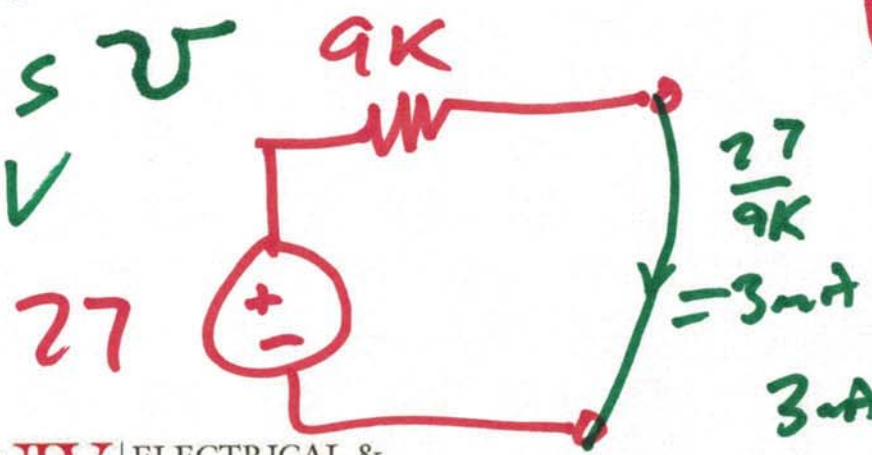
$$V_x = \frac{9K \cdot 9V}{18K + 9K} = 3V$$

$\frac{1mA}{1V} = 10^{-3} \cdot \mho$

MOHS

MHOS $\mho$

$\frac{A}{V} \cdot V$



$V_{TH} = 27V$

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