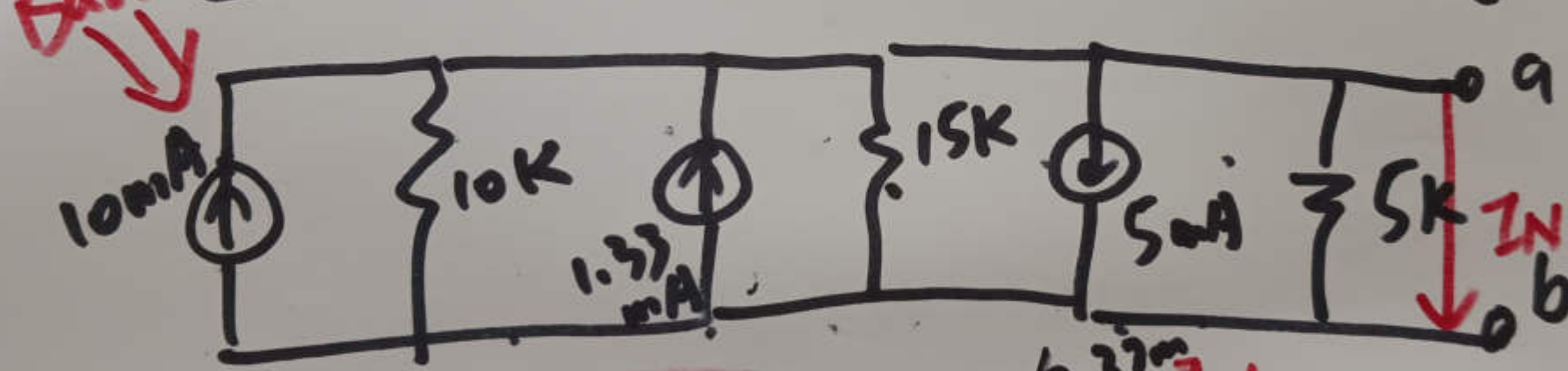
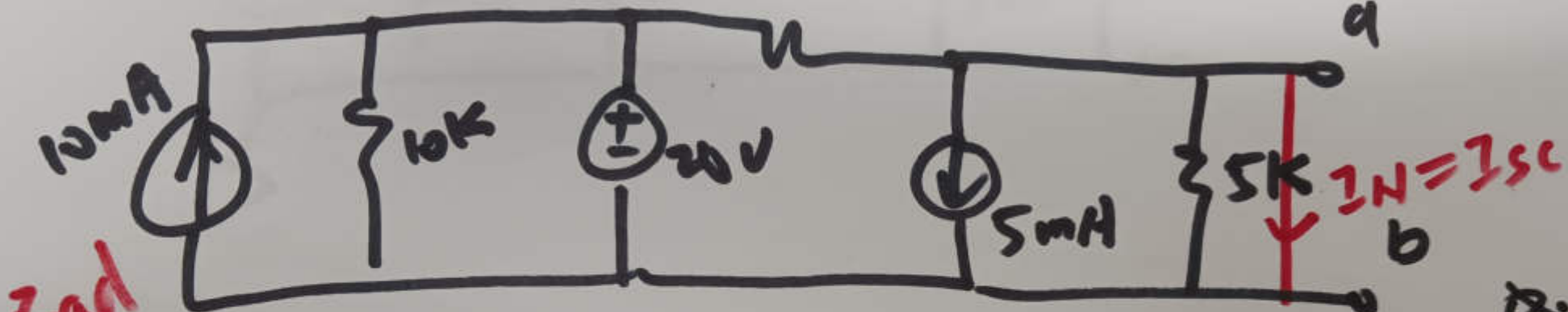
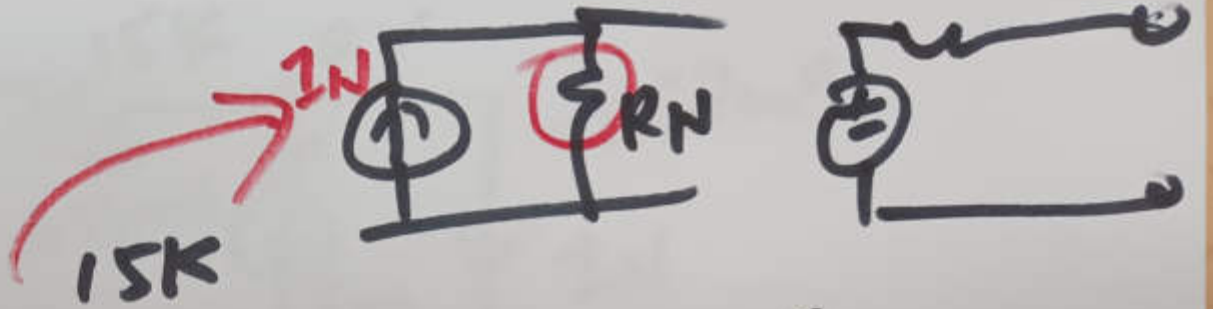
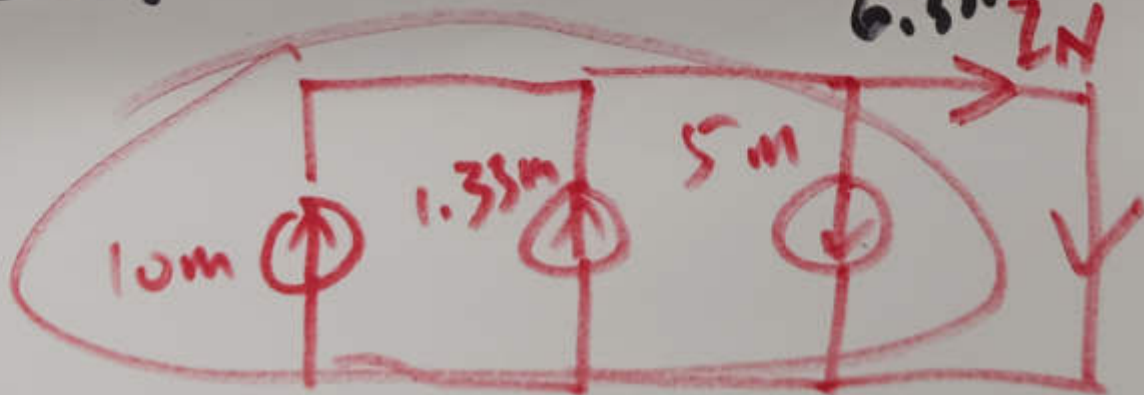


P4.67

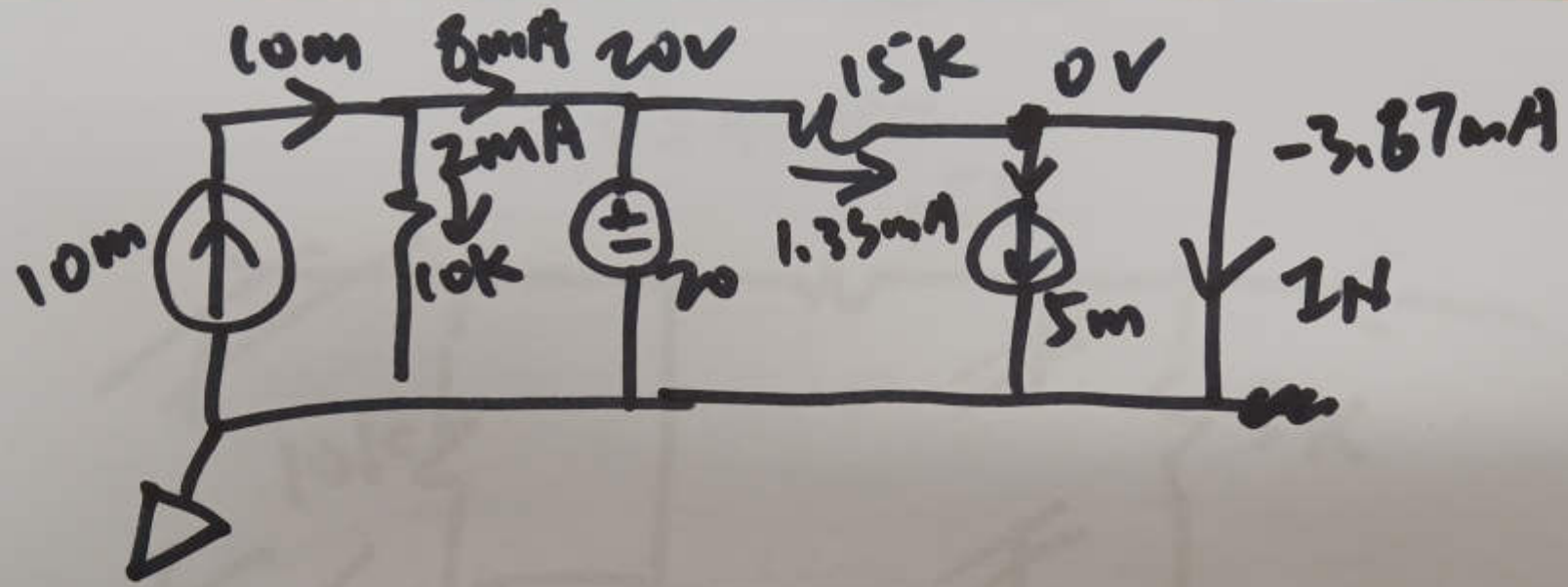


~~$\frac{0.5\text{K}}{0.5\text{K}}$~~



$I_N = I_{sc}$

①

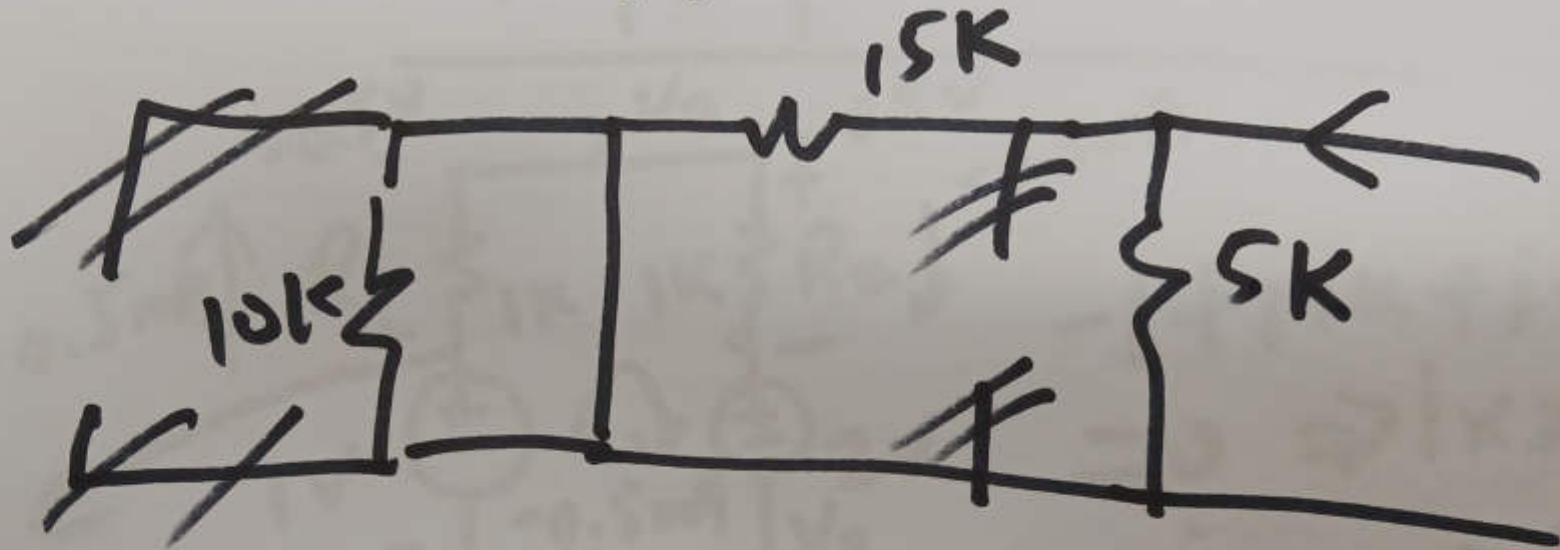


$$15\text{k}\Omega / 10\text{V} = \frac{15\text{k}\Omega \cdot 20\text{V}}{200\text{V}}$$

$$R_{TH} = R_{NL} = 3.67\text{k}\Omega$$

②

$$R_{TH} = R_{IN}$$

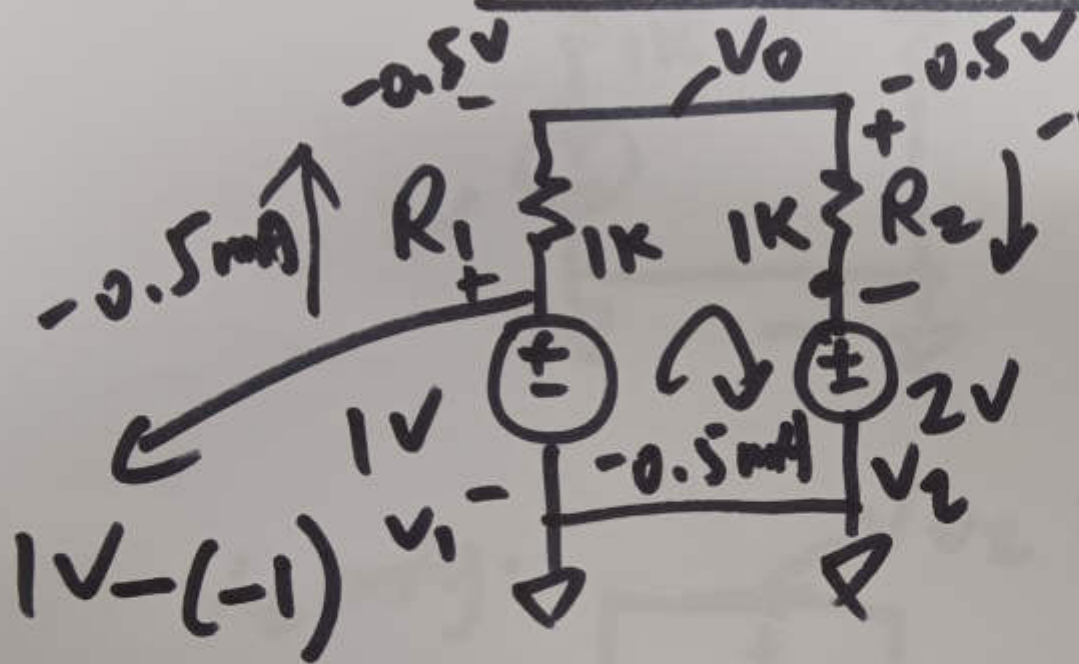


$$15k/15k = \frac{15k \cdot 5k}{20k}$$

$$R_{TH} = R_{IN} = 3.75k$$

(3)

Superposition

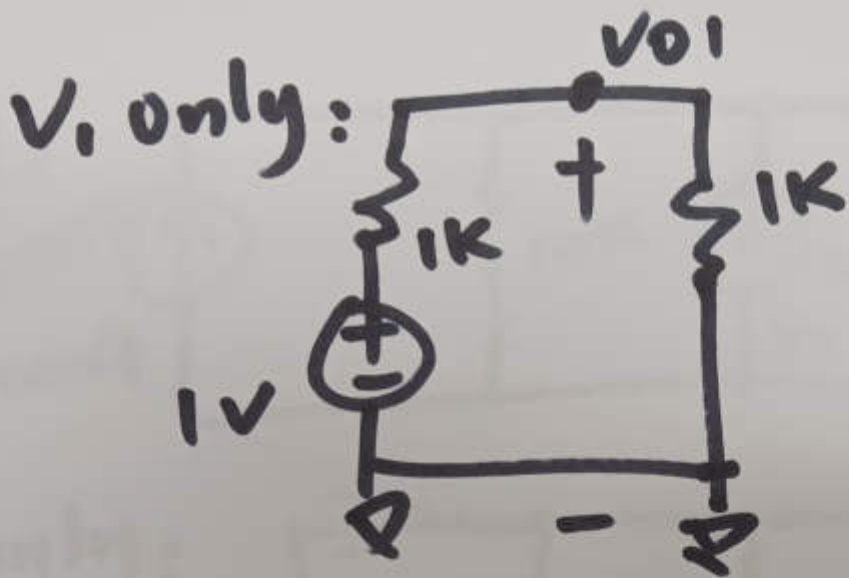


$$\begin{aligned}
 & -1 + i \cdot 1\text{k} + i \cdot 1\text{k} + 2\text{V} \\
 & = 0 \Rightarrow i \times 2\text{k} = -1\text{V} \\
 & \Rightarrow i = -0.5\text{mA}
 \end{aligned}$$

$= 2\text{V}$

superposition: Involve one source at a time

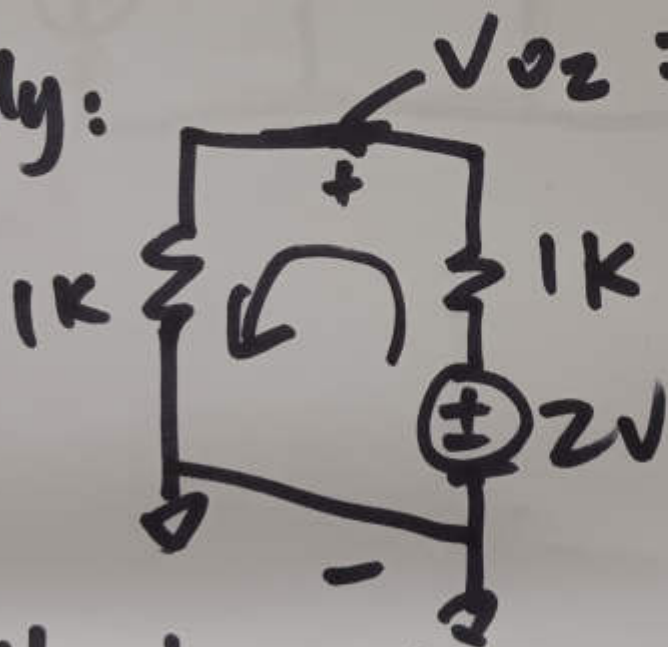
other sources: v : short
 c : Dixon



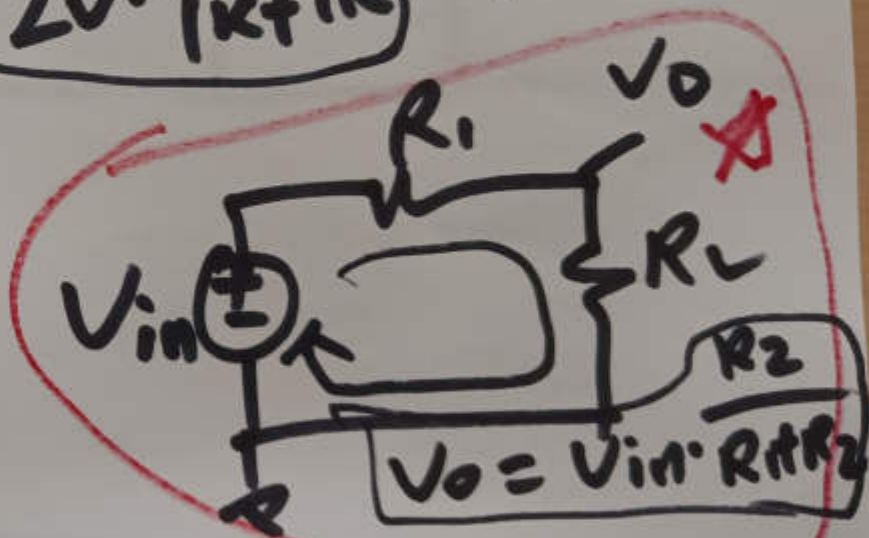
$$V_{01} = 1V \cdot \frac{1k}{1k+1k}$$

$$= 0.5V$$

V_2 only:



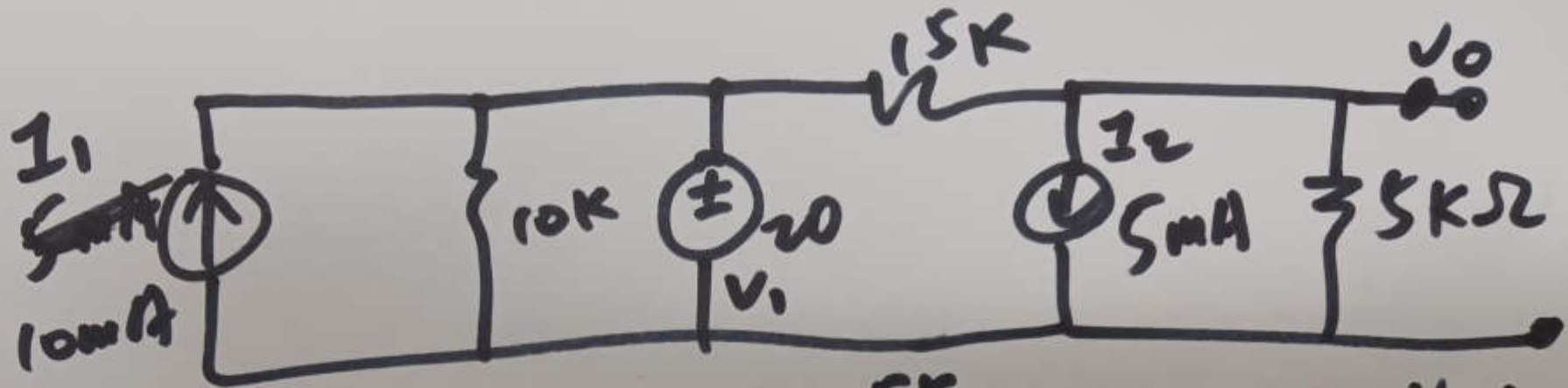
$$V_{02} = 2V \cdot \frac{1k}{1k+1k} = 1V$$



$$V_o = V_{in} \cdot \frac{R_2}{R_1 + R_2}$$

overall $V_o = V_{01} + V_{02} = 0.5V + 1V = 1.5V$

⑤



I_1 only:

