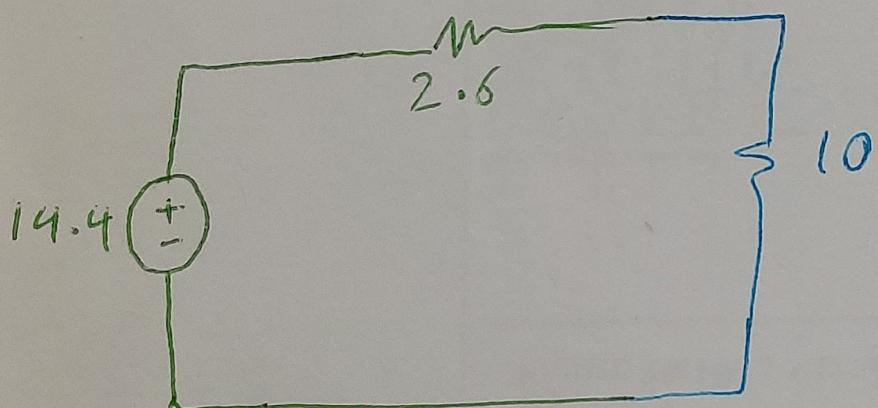
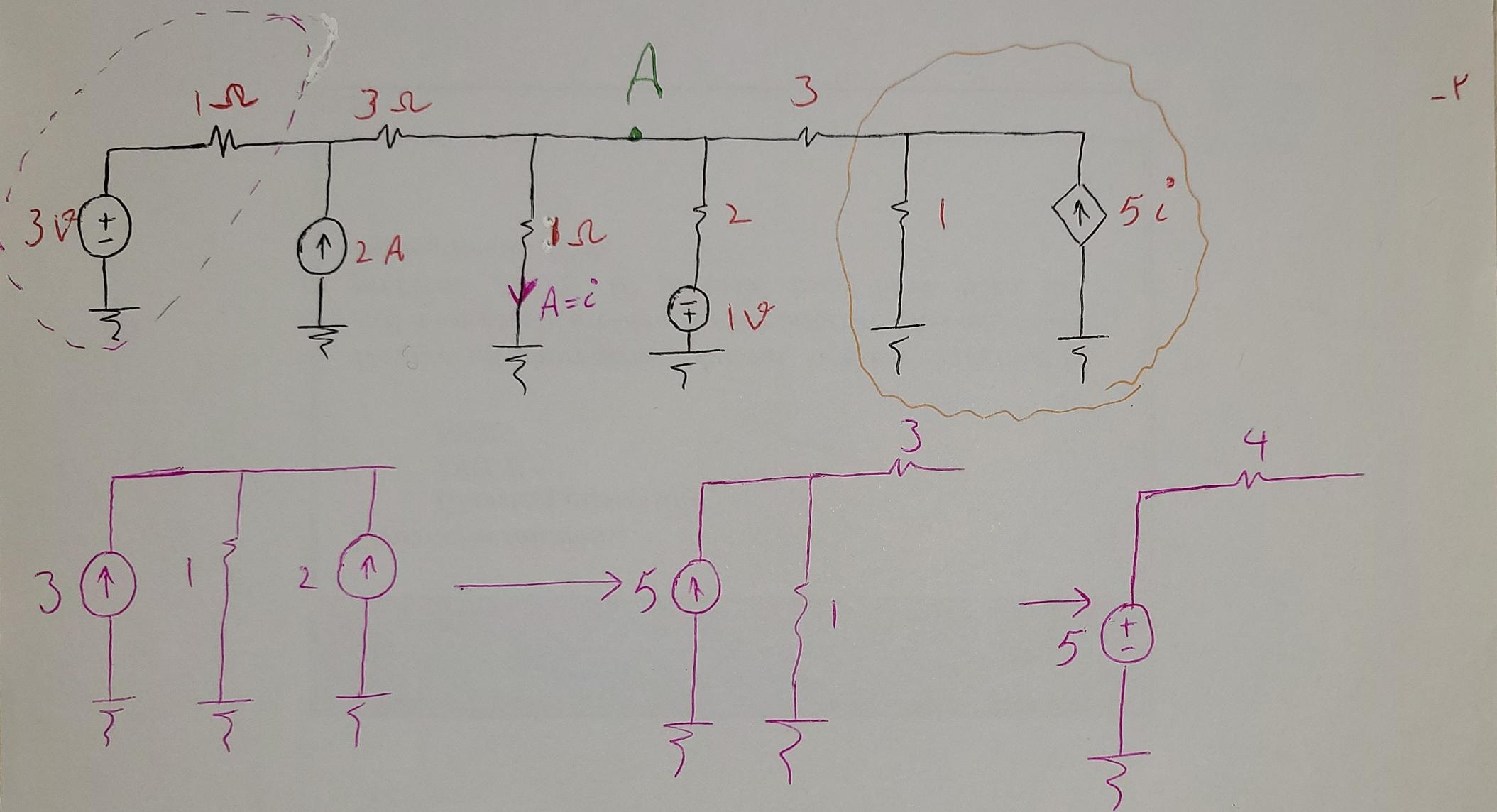


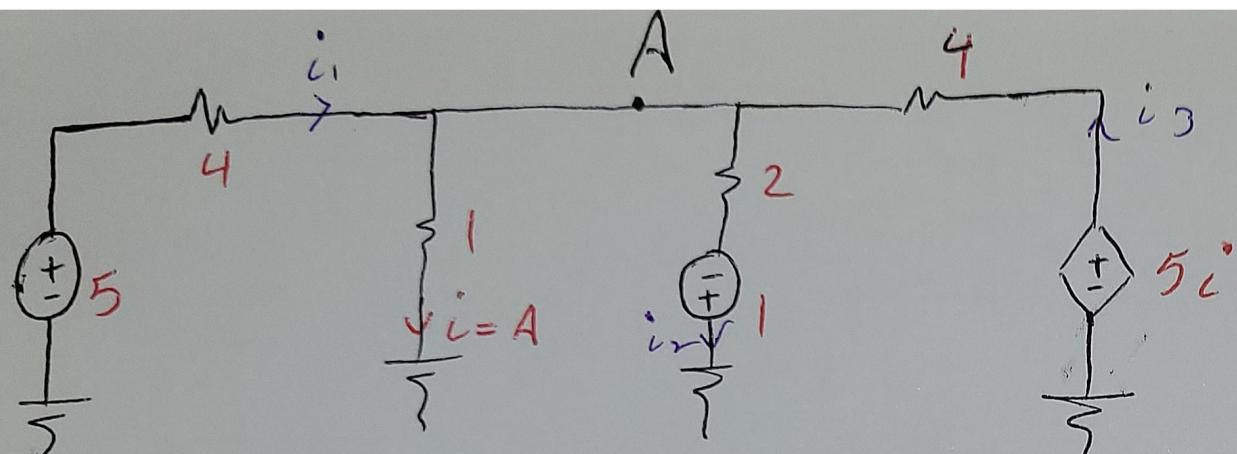
$$V_{AB} = 2 + 3 = \frac{A}{3} + \frac{A - 10}{24} \Rightarrow V_{AB} = 14.4$$

$$R_{th_{AB}} = 24 \parallel 3 = 2.6$$



$$I = \frac{14.4}{2.6 + 10} = 1.14$$





$$A \Rightarrow \frac{A-5}{4} + \frac{A}{1} + \frac{A+1}{2} + \frac{A-5A}{4} = 0 \rightarrow A = 9.75$$

$$i_1 = \frac{5-1}{4} = 1A$$

$$i_2 = 1A$$

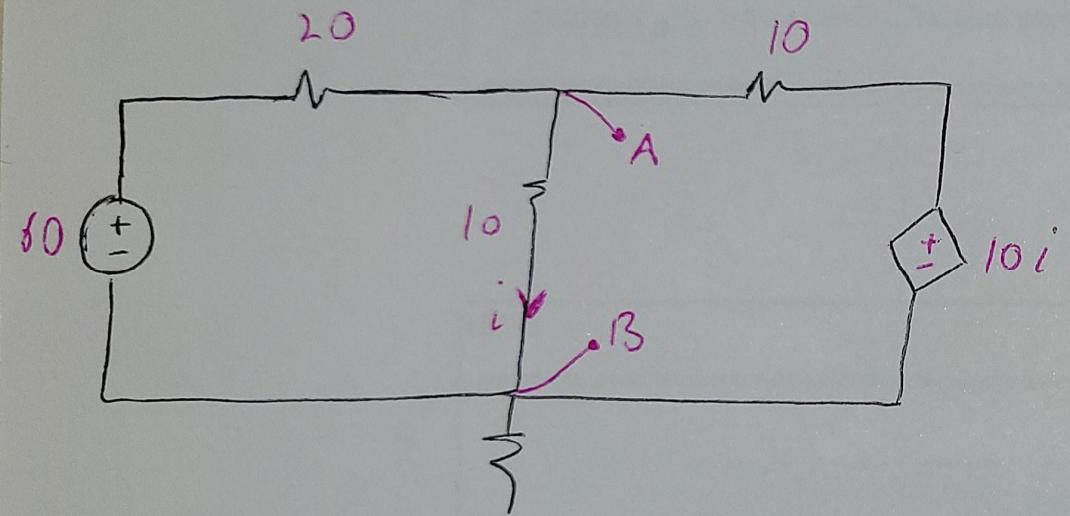
$$i_3 = 1A$$

$$P_1 = 5 \times 1 = 5$$

$$P_2 = 1 \times 1 = 1$$

$$P_3 = 5 \times 1 = 5$$

$$P_{eq} = 11$$

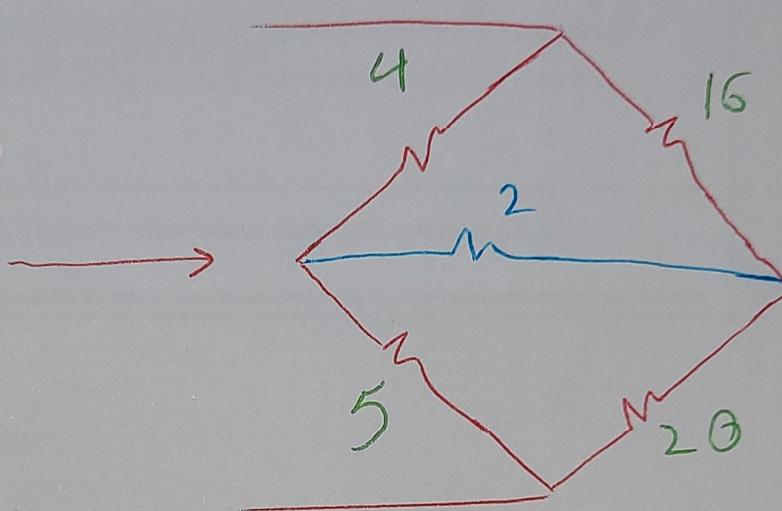
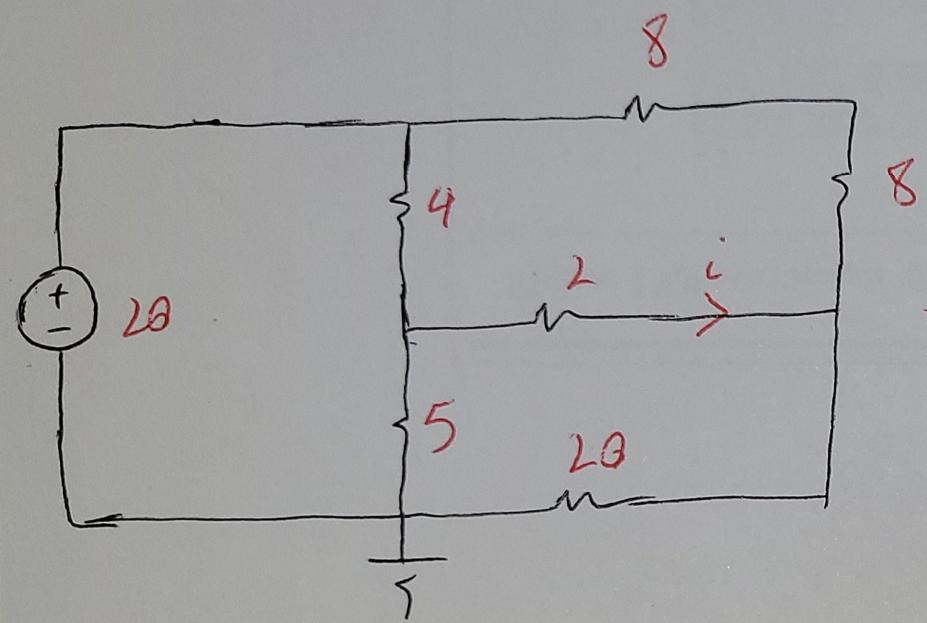


$$i = \frac{A}{10}$$

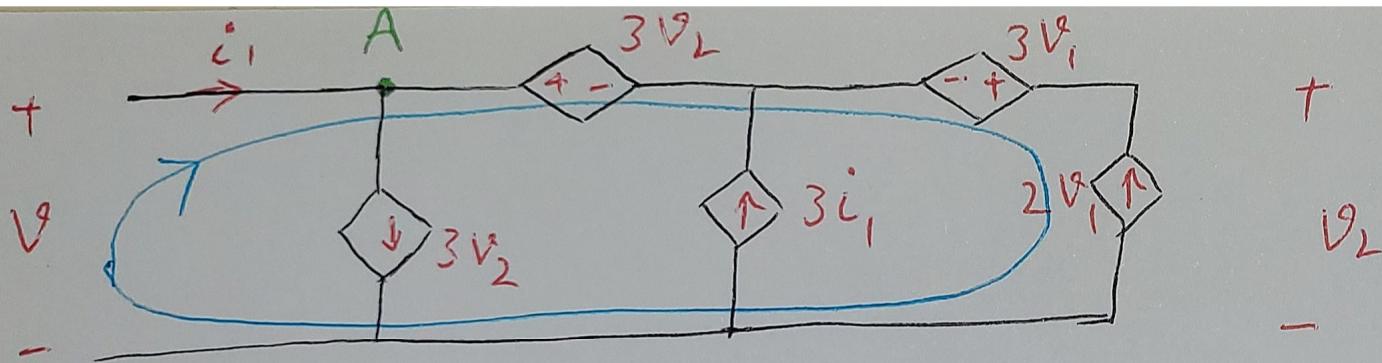
$$\frac{A - 60}{20} + \frac{A}{10} + \frac{A - A}{10} = 0 \quad A = 20V$$

$$i = 2A$$

عوامل معاو



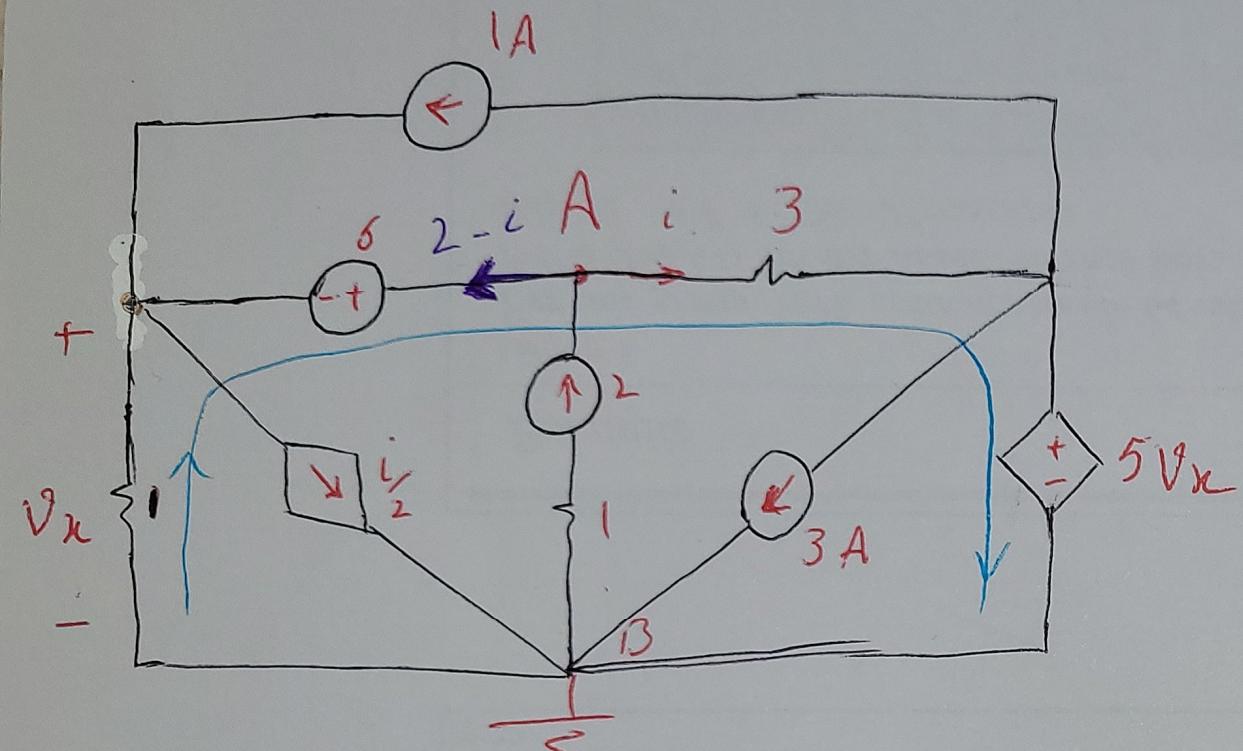
$$4 \times 20 = 5 \times 16 \rightarrow i = 0$$



$$-V_1 + 3V_2 - 3V_1 + V_2 = 0 \rightarrow V_1 = V_2$$

$$\text{KCL at } A: i_1 + 3i_1 + 2V_1 = 3V_2 \rightarrow i = \frac{1}{4}V_1$$

$$R_{th} = \frac{V_1}{i_1} = \frac{V_1}{\frac{1}{4}V_1} = 4\Omega$$



$$A = V_x + 6$$

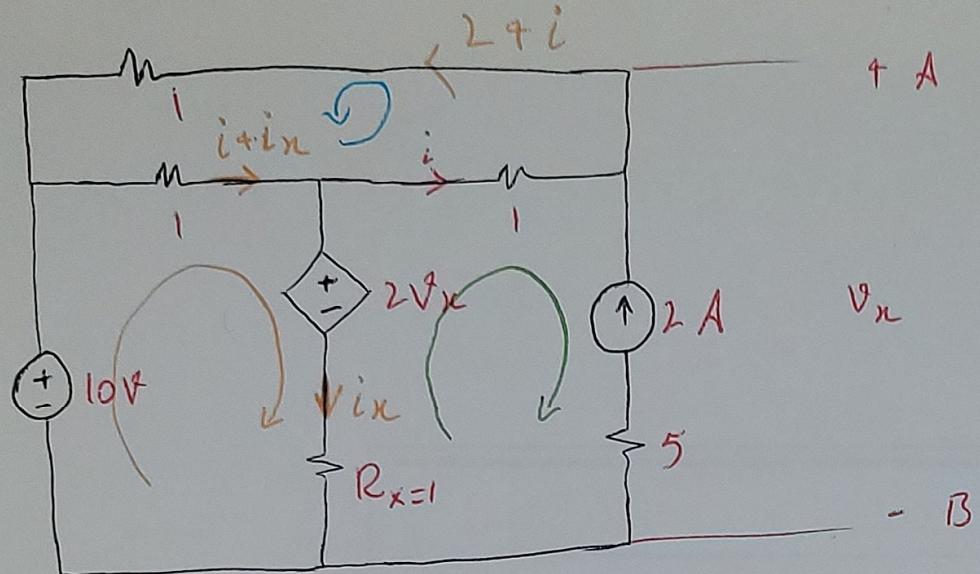
$$-V_x - 6 + 3i + 5V_x = 0 \rightarrow 4V_x = 6 - 3i$$

$$2 - i + 1 = V_x + \frac{i}{2} \rightarrow 3 - i = V_x + \frac{i}{2} \rightarrow 6 - 2i = 2V_x + i \rightarrow 3i = 6 - 2V_x$$

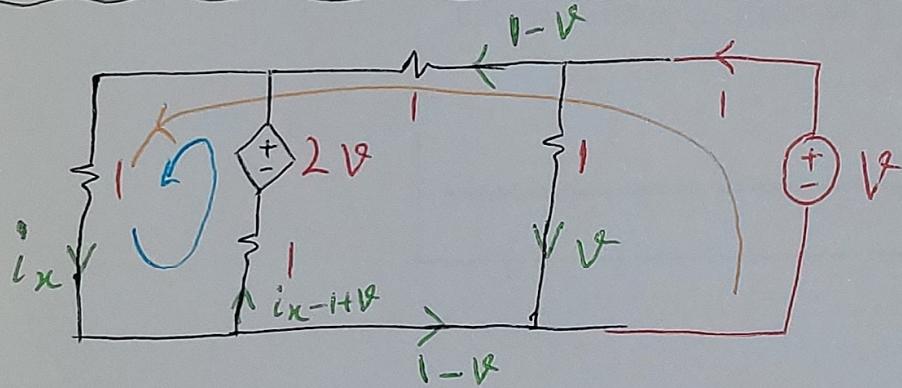
$$4V_x = 6 - 6 + 2V_x \rightarrow 4V_x = 2V_x \rightarrow V_x = 0$$

$$A = 6$$

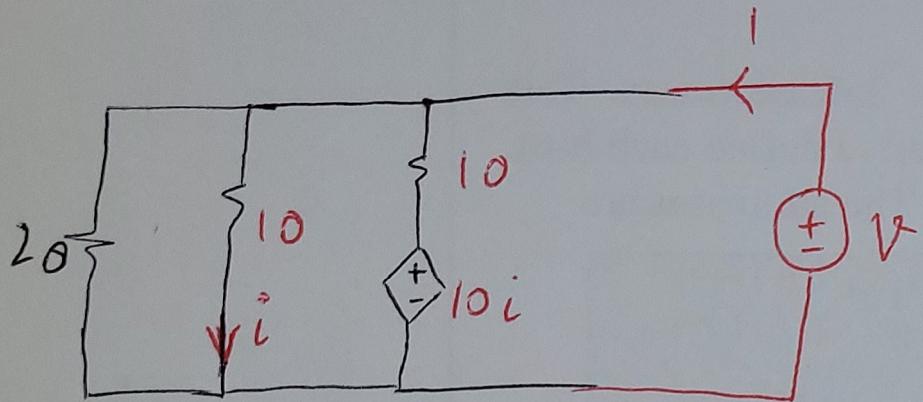
$$R + h = ?$$



$$\left. \begin{array}{l} -10 + i + i_x + 2V_x + i_x = 0 \\ -i_x - 2V_x + i + V_x = 0 \\ i + 2 + i + i + i_x = 0 \end{array} \right\} \begin{array}{l} i = \frac{10}{3} \\ i_x = -12 \end{array}$$



$$\left. \begin{array}{l} -V + 1 - V + i_x = 0 \rightarrow +2V = 1 + i_x \\ i_x + i_x - 1 + V - 2V = 0 \rightarrow V = 2i_x - 1 \end{array} \right\} V = 1$$



$$I = \frac{V}{10} + \frac{V}{2\Omega} \rightarrow V = R_{th} = \frac{20}{3}$$