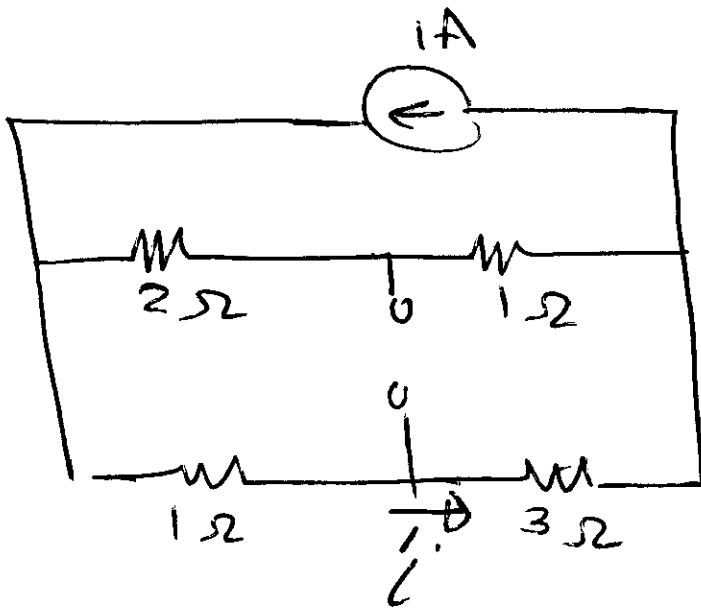


(1)

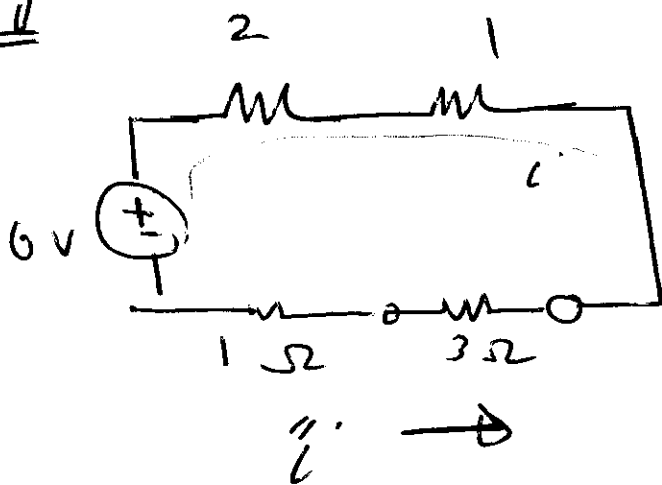
using superposition

1A



$$i' = \frac{(2+1)}{(2+1) + (1+3)} = \frac{3}{7} \text{ A}$$

6V



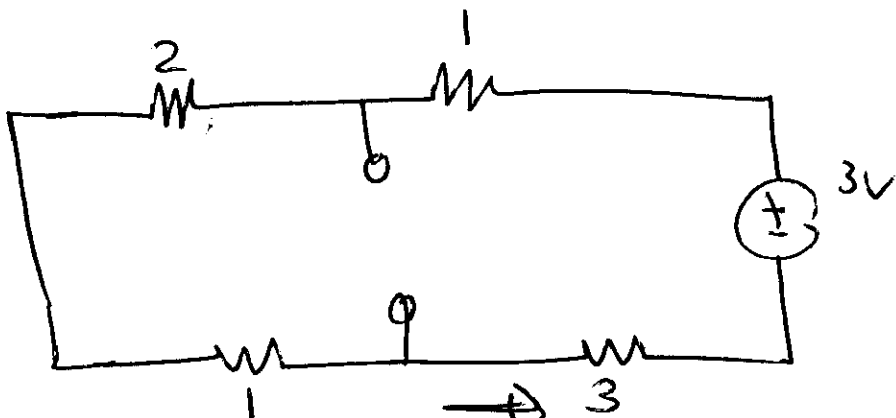
$$i'' = \frac{-6}{2+1+3+1} = -\frac{6}{7}$$

~~1A~~

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

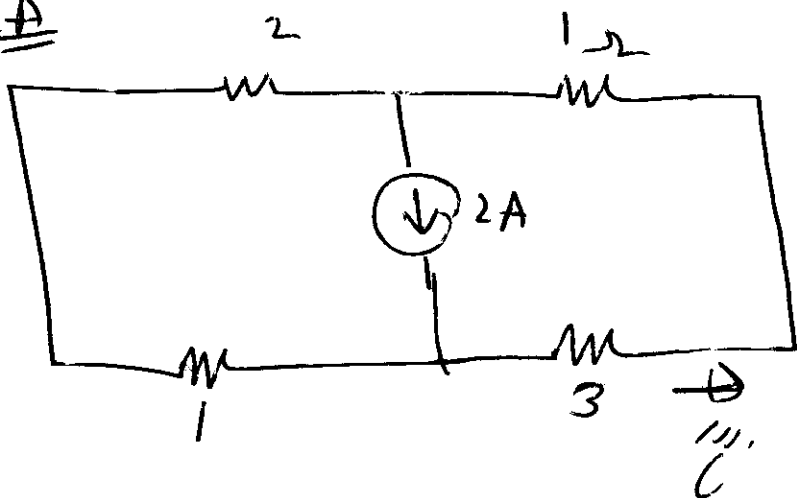
3V

(2)



$$I = \frac{3}{1+2+1+3} = \frac{3}{7} \text{ A}$$

2A

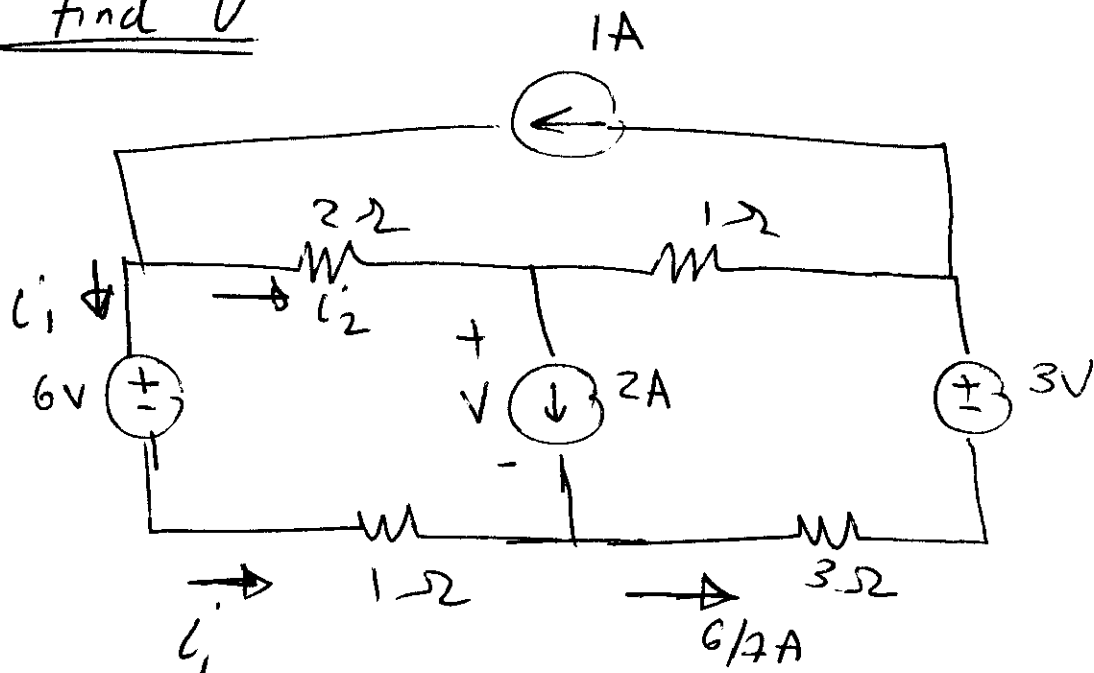


$$I = \frac{(1+2)}{(1+2)+(3+1)} \cdot 2 = \frac{3}{7} \cdot 2 = \frac{6}{7} \text{ A}$$

$$\begin{aligned} I &= I' + I'' + I''' + I'''' \\ &= \frac{3}{7} - \frac{6}{7} + \frac{3}{7} + \frac{6}{7} \\ &= \frac{6}{7} \text{ A} \end{aligned}$$

To find V

3 (4)



KCL $i_1 + 2 = \frac{6}{7} \Rightarrow i_1 = \frac{6}{7} - 2 = \frac{-8}{7} \text{ A}$

KCL $1 = i_1 + i_2 \Rightarrow i_2 = 1 - i_1 = 1 + \frac{8}{7} = \frac{15}{7} \text{ A}$

KVL $-6 + 2(i_2) + V - 1i_1 = 0$

$-6 + 2\left(\frac{15}{7}\right) + V - \left(-\frac{8}{7}\right) = 0$

$-6 + \frac{30}{7} + \frac{8}{7} + V = 0$

$-6 + \frac{38}{7} + V = 0$

$\Rightarrow V = 6 - \frac{38}{7} = \frac{42 - 38}{7} = \frac{4}{7} \text{ V}$