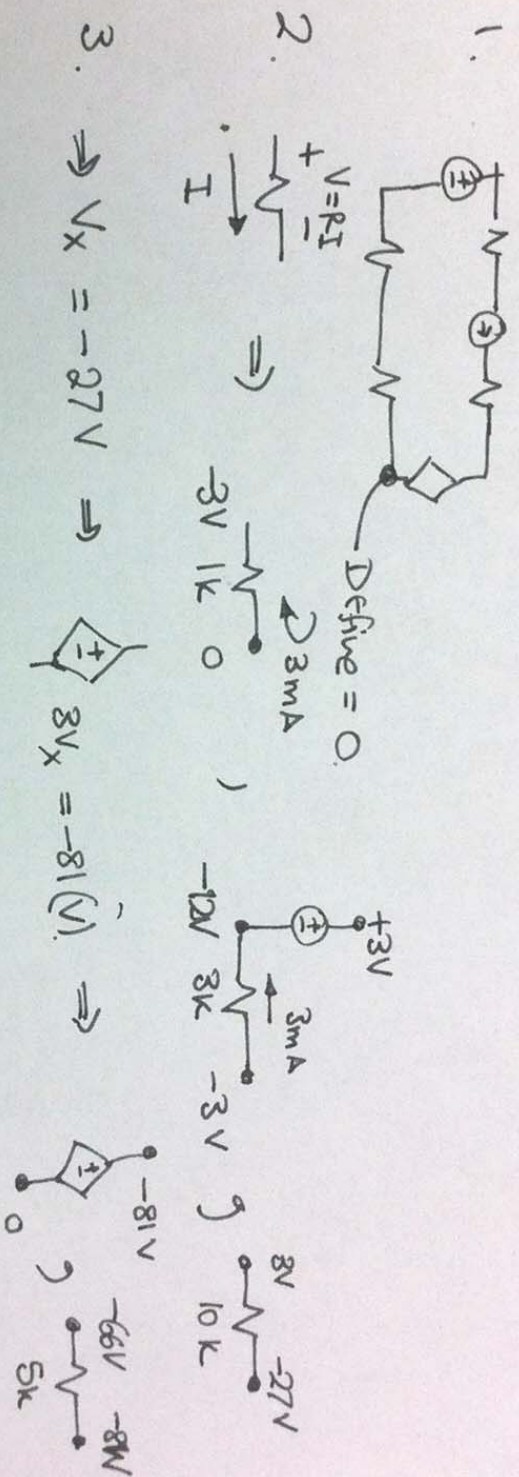


2.42 There is 3mA current in the CW direction.

We compute the voltages at each node:



A. Power by each source:

$P_1 = -VI = -45mW$  (45mW supplied)

$P_2 = +VI = +117mW$  (117mW absorbed)  
 or -117mW supplied

$P_3 = -VI = -243mW$  (243mW supplied)

Note. The resistors absorb  $(90+45+27+9)$  mW which equals the supplied power by the sources  $(45-117+243)$  mW.

2.47

Current division:

$$I_0 = \frac{\frac{1}{2k}}{\frac{1}{2k} + \frac{1}{6k} + \frac{1}{3k}} \cdot 12m(A) = \underline{\underline{6m(A)}}$$

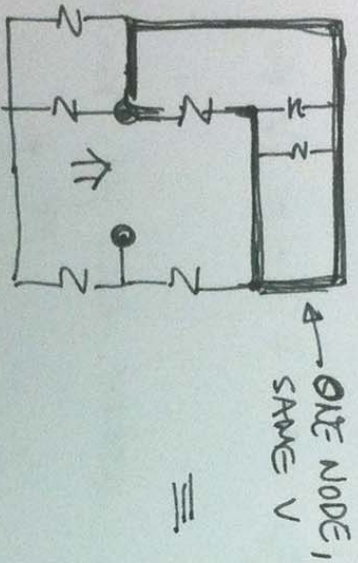
(Alt:  $R_{eff} = \frac{1}{\frac{1}{2k} + \frac{1}{6k} + \frac{1}{3k}} = 1k(\Omega) \Rightarrow V_R = 1k \cdot 12m = 12V$ )

$$\Rightarrow I_0 = \frac{V_R}{2k} = 6m(A)$$

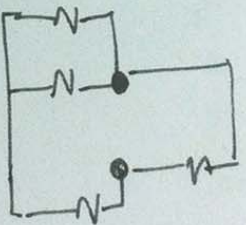

---

2.63

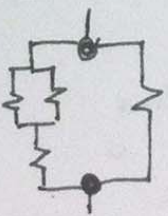
Redraw to simplify:



$\equiv$



$\equiv$



$$\Rightarrow R_{eq} = (12 + (12 \parallel 12)) \parallel 12$$

$$= (12 + 6) \parallel 12$$

$$= 18 \parallel 12$$

$$= 7.2(\Omega)$$


---