

Superposisi

30 volt aktif
1 A istirahat / non aktif \rightarrow ∞



loop I_1 :

$$-30 + 10 I_1 + 10 I_1 = 0$$

$$I_1 = \frac{30}{20} = \frac{3}{2} \text{ A}$$

$$V_1 = 10 I_1 = 15 \text{ Volt}$$

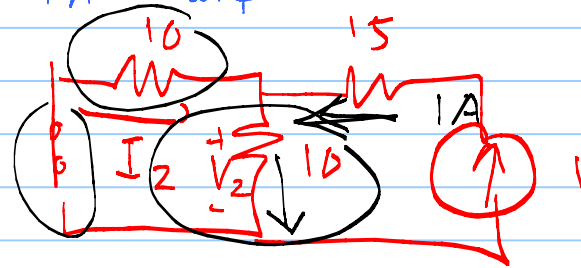
$$I = I_1 + I_2$$

$$= \frac{3}{2} - 0,5 = 1 \text{ A}$$

$$V = V_1 + V_2 = 15 + 5$$

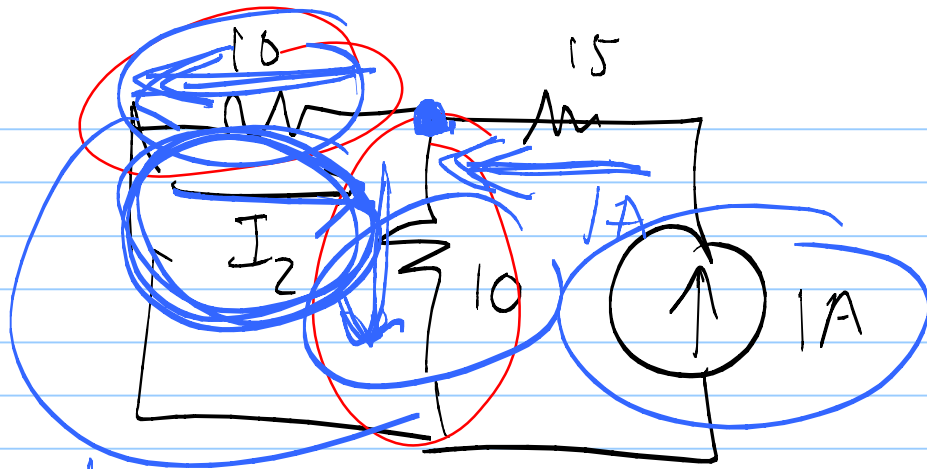
$$= 20 \text{ Volt}$$

30 volt istirahat \rightarrow SC
1 A aktif.



$$I_2 = -0,5 \text{ A}$$

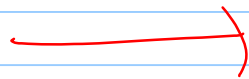
$$V_2 = 0,5 \times 10 = 5 \text{ Volt}$$



$$I_2 = \ominus 0,5 A$$

sumbu arus dky

Paralel



sekal pambagi arus

komponen part



$$20 I_A - 10 I_B = 0$$

$$20 I_A + 10 = 0$$

$$I_A = -\frac{10}{20} = -0,5 \text{ A}$$

Loop I_A

$$10 I_A + 10 I_A - 10 I_B = 0$$

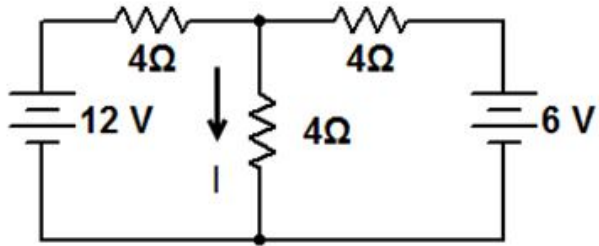
$$20 I_A - 10 I_B = 0 \dots (1)$$

Loop I_B

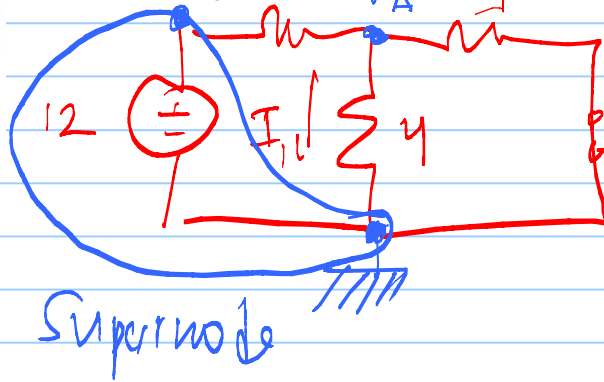
$$\sum V = 0 \quad \checkmark$$

karena ada arus

$$I_B = -1 \dots (2) \uparrow \text{A}$$



12 volt always
6 volt is shorted \rightarrow SC
+12V V_A



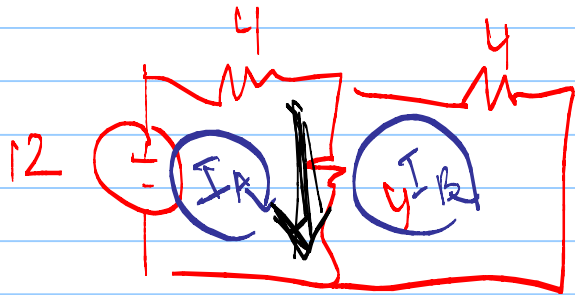
Node voltage V_A :

$$\frac{V_A}{4} + \frac{V_A}{4} + \frac{V_A - 12}{4} = 0$$

$$3V_A - 12 = 0$$

$$V_A = 4 \text{ volt}$$

$$I_1 = \frac{V_A}{4} = 1 \text{ A}$$



Loop I_A

$$-12 + 4I_A + 4I_A - 4I_B = 0$$

$$8I_A - 4I_B = 12$$

Loop I_B

$$4I_B + 4I_B - 4I_A = 0 \Rightarrow 8I_B - 4I_A = 0$$

Substitution $I = I_A - I_B$

$$8I_A - 4I_B = 12$$

$\times 2$

$$16I_A - 8I_B = 24$$

$$8I_B - 4I_A = 0$$

$\times 1$

$$-4I_A + 8I_B = 0$$

+

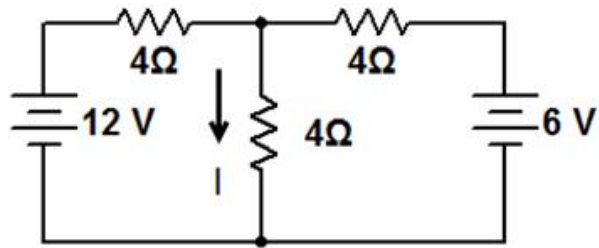
$$12I_A = 24$$

$$I_A = 2A$$

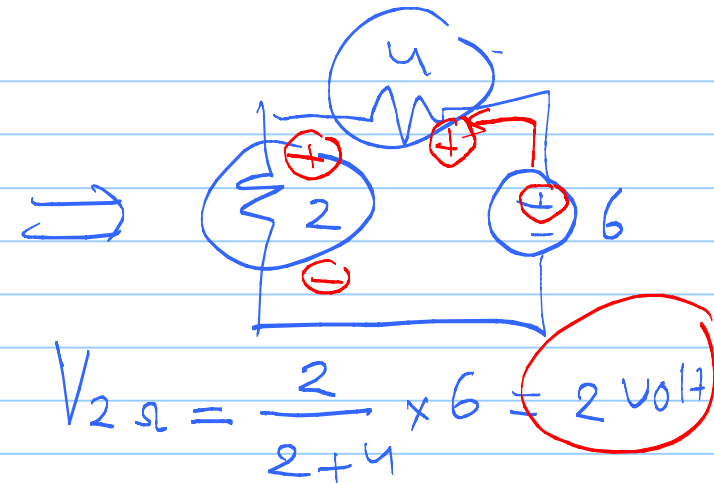
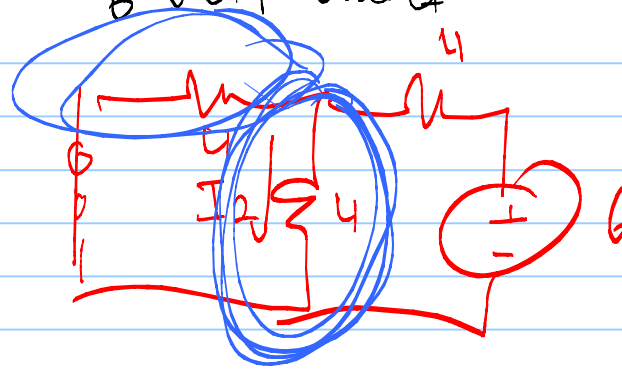
$$8I_B - 8 = 0$$

$$I_B = 1A$$

$$I = I_A - I_B = 2 - 1 = 1A$$



12 volt israhak \rightarrow SC
 6 volt sumber

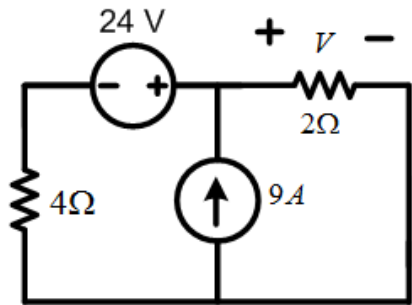


$$V_{2\Omega} = \frac{2}{2+4} \times 6 = 2 \text{ volt}$$

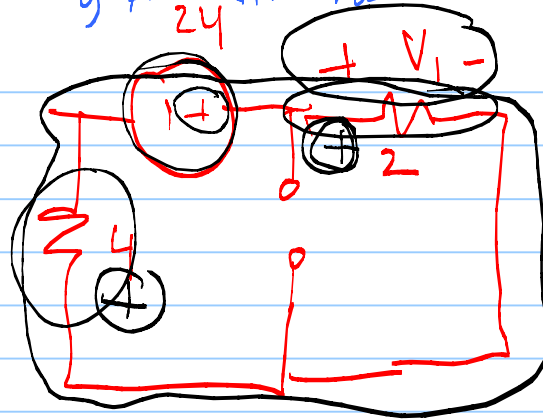
$$I_2 = \frac{V_{4\Omega}}{4} = \frac{2}{4} = \frac{1}{2} \text{ A}$$

$$I = I_1 + I_2 = 1 + \frac{1}{2}$$

$$I = \frac{3}{2} \text{ A}$$



24 volt aktif
9 A isirahat \rightarrow OC

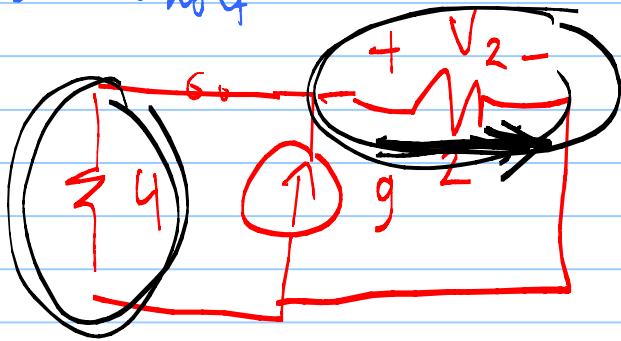


Seri \rightarrow pembagi teg

$$V_1 = \frac{2}{2+4} \times 24$$

$$= \frac{2}{6} \times 24 = 8 \text{ volt}$$

24 volt isirahat \rightarrow SC
9 A aktif.

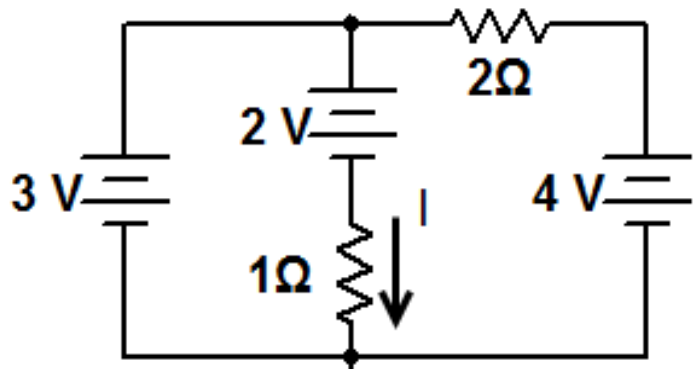


Paralel \rightarrow sifat pembagi arus.

$$I_2 = \frac{4}{4+2} \times 9 = \frac{4}{6} \times 9 = 6 \text{ A}$$

$$V_2 = 6 \times 2 = 12 \text{ Volt}$$

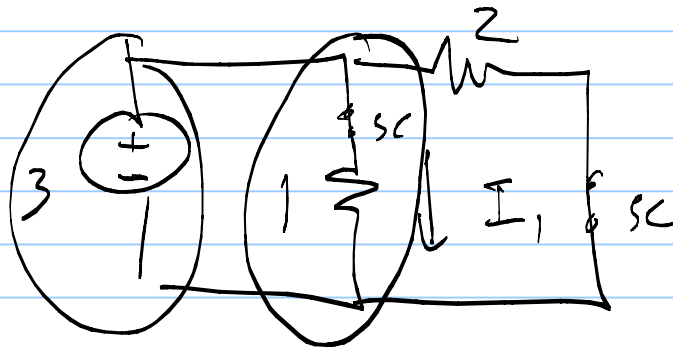
$$V = V_1 + V_2 = 20 \text{ Volt}$$



3 Ω 4 volt ~~istrah~~
2 V ~~aktif~~



3 volt ~~aktif~~
2 V 8 4 volt ~~istrah~~ → SC



$$I_1 = \frac{3}{1} = 3 \text{ A}$$

3 8 2 volt ~~istrah~~
4 volt ~~aktif~~



$$I = I_1 + I_2 + I_3$$

$$= 3 + 0 - 2$$

$$= 1 \text{ A}$$

$$I_2 = 0$$

