

$$\text{Mesh A: } 46i_a + 59(i_a - i_b) - 28 = 0$$

$$\Rightarrow 105i_a - 59i_b = 28$$

$$i_a = \frac{25}{16+7} = \frac{25}{23}$$

$$\text{Mesh B: } 59(i_b - i_a) + 46i_b + 8i_a = 0$$

$$\left\{ \begin{array}{l} \Rightarrow -59i_a + \frac{105i_b}{23} = -\frac{200}{23} \\ i_a = 0.23 \quad 0.321706856 \\ i_b = 0.10 \quad \frac{4249}{4372} \end{array} \right.$$

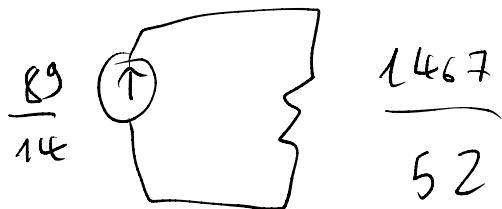
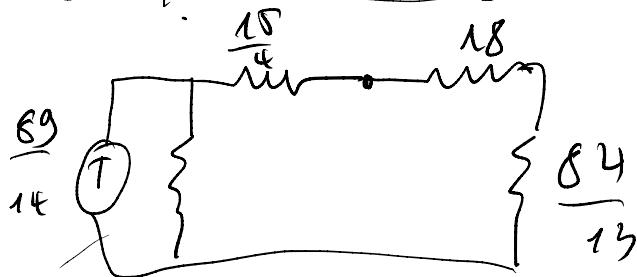
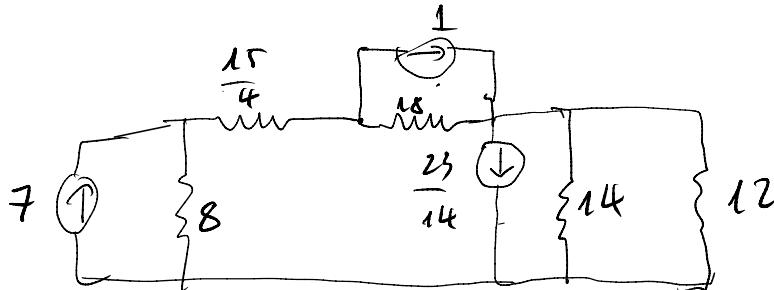
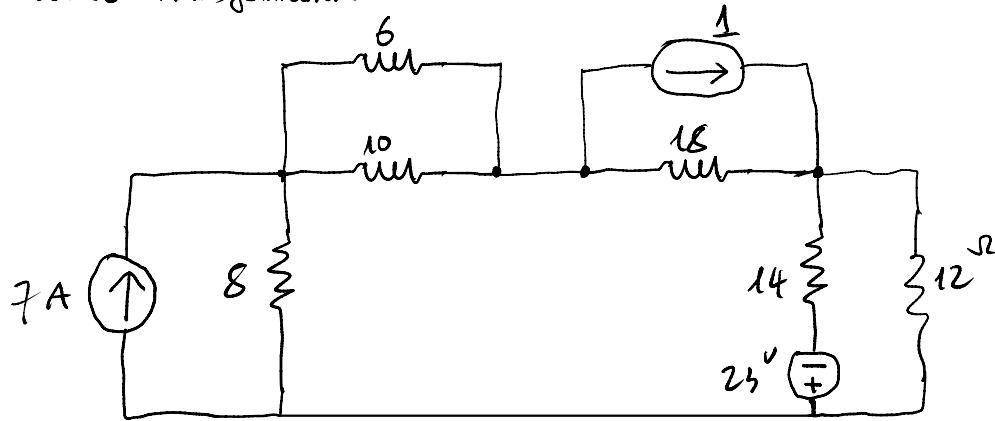
$$\text{Mesh C: } 18i_c + 7i_c - 29 = 0$$

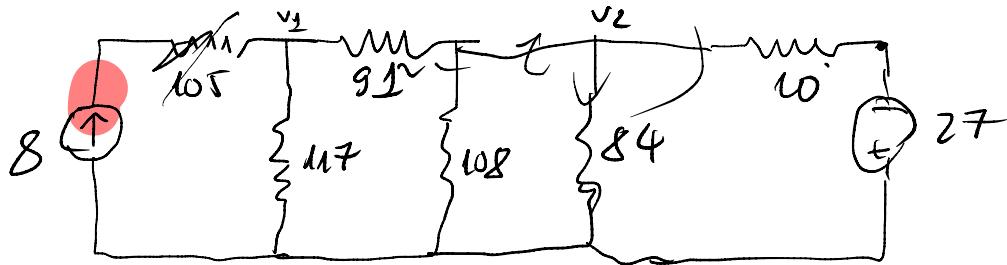
$$\Rightarrow i_c = 1.16 \text{ (A)}$$

$$v_o = 59(i_a - i_b) = 11.04 \text{ V}$$

$$= 15.20 \text{ V}$$

Source Transformation





$$\left\{ \begin{array}{l}
 \frac{v_1}{86} + \frac{v_1 - v_2}{88} = 7 \\
 \frac{v_2}{114} + \frac{v_2 - v_1}{88} + \frac{v_2 + 25}{6} + \frac{v_2}{87} = 0
 \end{array} \right.$$

$$\left\{ \begin{array}{l}
 v_1 = 302.646475 \\
 \simeq 302.65 \text{ V}
 \end{array} \right.$$

$$v_2 = -\frac{2337}{637} \simeq -3.67 \text{ V}$$

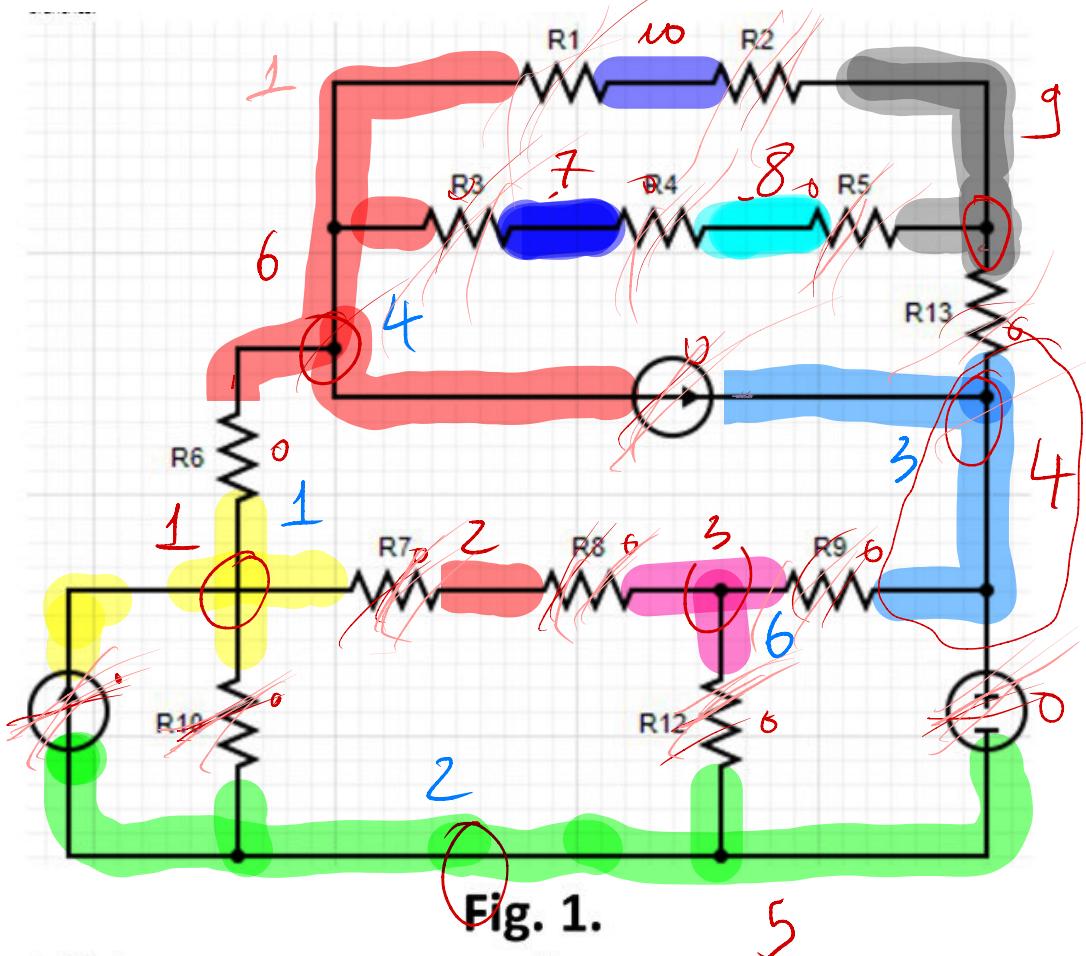


Fig. 1.

- ▼ Nodes
- ▼ Essential nodes
- Mesh
- ▼ Branches
- ▼ Essential branches

- A. 8
- B. 13
- C. 7
- D. 15
- E. 4
- F. 16
- G. Other
- H. 14
- I. 6
- J. 11
- K. 12
- L. 9
- M. 10
- N. 5

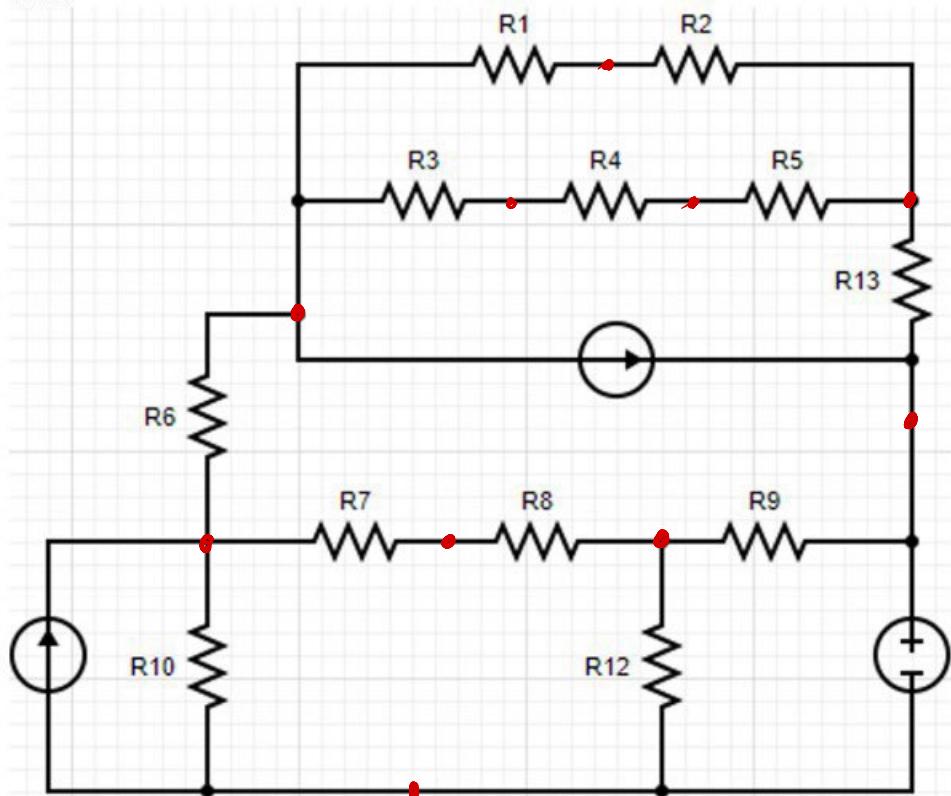
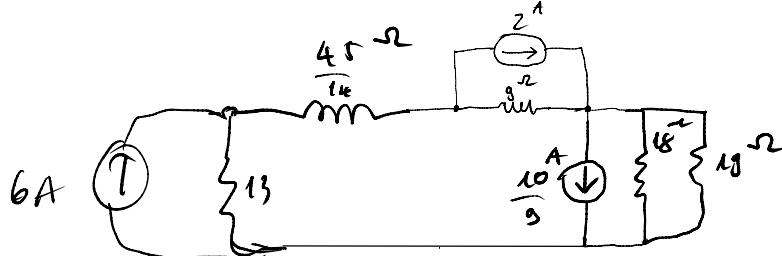
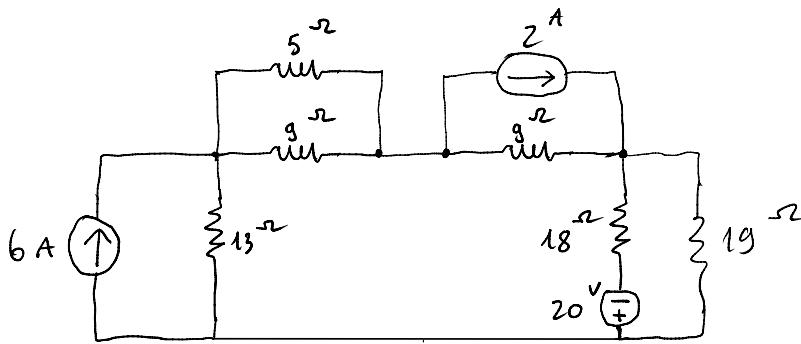


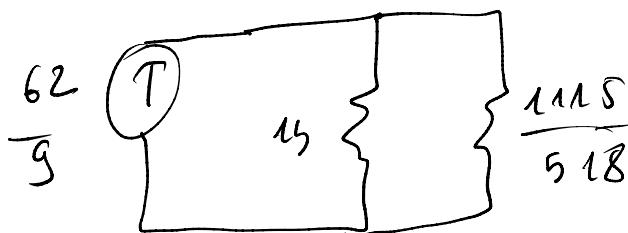
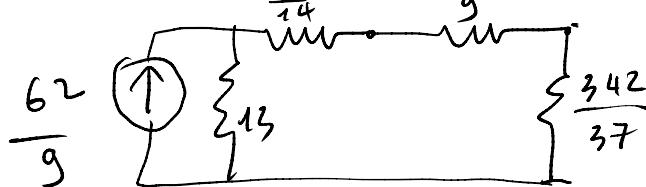
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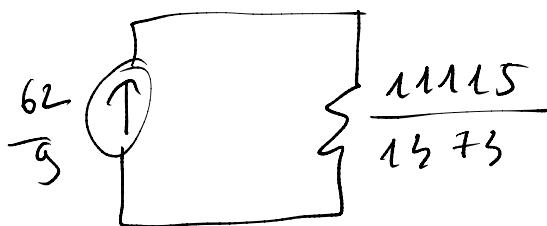
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$$\sum A = 6 + 2 - \frac{10}{9} = \frac{62}{9} A$$



$$\rightarrow V = \frac{62}{9} \times \text{Ans} = 55.76839$$



59c_a - 28+