

The circuit on the right was created by applying source transformations on the left circuit.

Find the values of V_a and R_a .

$$V_1 = 17 \text{ V}$$

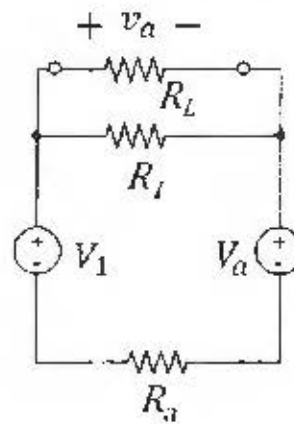
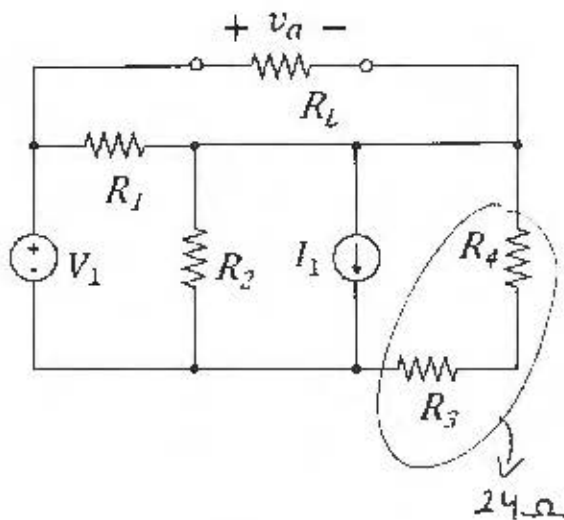
$$I_1 = 2 \text{ A}$$

$$R_1 = 22 \text{ ohm}$$

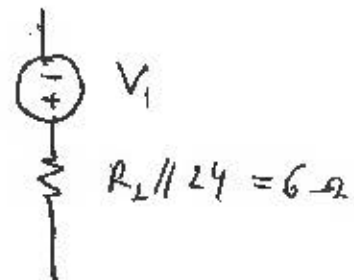
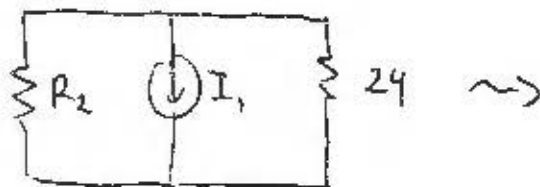
$$R_2 = 8 \text{ ohm}$$

$$R_3 = 12 \text{ ohm}$$

$$R_4 = 12 \text{ ohm}$$



$$R_2 // 24 = \left(\frac{1}{8} + \frac{1}{24} \right)^{-1} = \left(\frac{3}{24} + \frac{1}{24} \right)^{-1} = 6 \text{ ohm}$$



$$V_1 = I_1 \cdot (R_2 // 24) = 2 \cdot 6 = 12 \text{ V}$$

$$V_a = 12 \text{ V}$$

$$R_a = 6 \text{ ohm}$$