We measure v_1 and v_2.
Determine the values of resistances R_2 and R_3.

R1 = 12 Ω

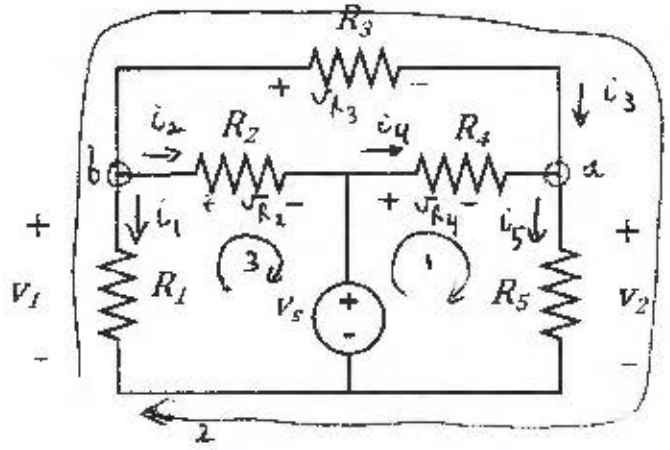
R4 = 9 Ω

R5 = 2 Ω

vs = 24 V

v1 = 12 V

v2 = 6 V



$$i_1 = \frac{v_1}{R_1} = \frac{12}{12} = 1 \qquad i_5 = \frac{v_2}{R_5} = \frac{6}{2} = 3$$

KVL 1: $v_s = v_{R_4} + v_2 \Rightarrow v_{R_4} = v_s - v_2 = 24 - 6 = 18$

$$i_4 = \frac{v_{R_4}}{R_4} = \frac{18}{9} = 2$$

KCL a: $i_3 + i_4 = i_5 \Rightarrow i_3 = i_5 - i_4 = 3 - 2 = 1$

KVL 2: $v_1 = v_{R_3} + v_2 \Rightarrow v_{R_3} = v_1 - v_2 = 6$

$$R_3 = \frac{v_{R_3}}{i_3} = \frac{6}{1} \Rightarrow \boxed{R_3 = 6\ \Omega}$$

KCL b: $i_1 + i_2 + i_3 = 0 \Rightarrow i_2 = -i_1 - i_3 = -1 - 1 = -2$

KVL 3: $v_1 = v_{R_2} + v_s \Rightarrow v_{R_2} = v_1 - v_s = 12 - 24 = -12$

$$R_2 = \frac{v_{R_2}}{i_2} = \frac{-12}{-2} \Rightarrow \boxed{R_2 = 6\ \Omega}$$