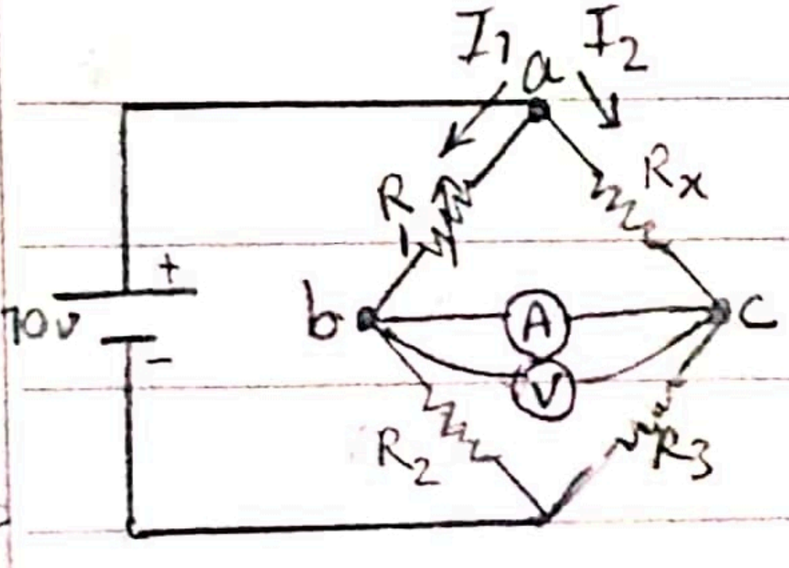
سوالات آزمایش ③

① در بالا در صفحه قبل اثبات شده که مقدار مقاومت R_L باید برابر با R_{Th} باشد.

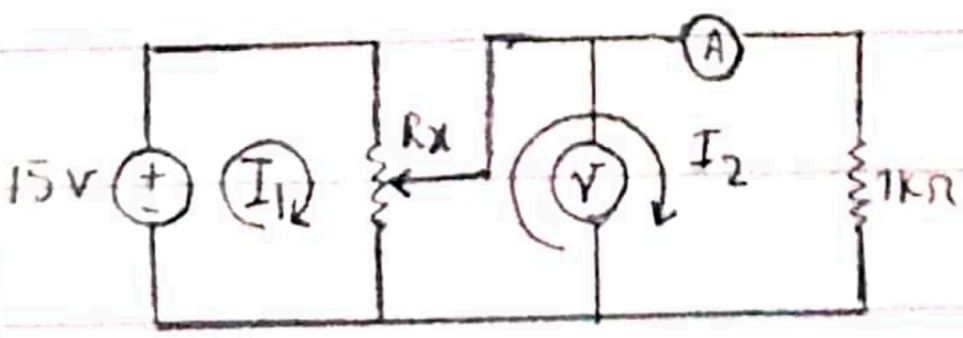


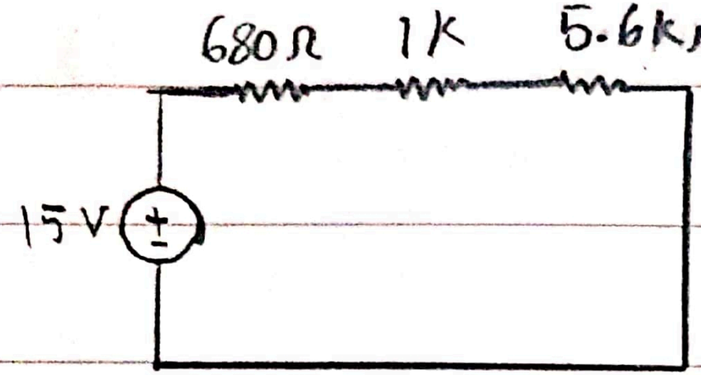
② $I_1 = \frac{V}{R_1+R_2}$, $I_2 = \frac{V}{R_x+R_3}$

$V_{ab} = \frac{R_1}{R_1+R_2} V$, $V_{ac} = \frac{R_x}{R_x+R_3} V$

$V_{bc} = 0 \rightarrow \frac{R_1}{R_1+R_2} = \frac{R_x}{R_x+R_3} \rightarrow R_1 R_3 = R_2 R_x \rightarrow R_x = \frac{R_1 R_3}{R_2}$

③





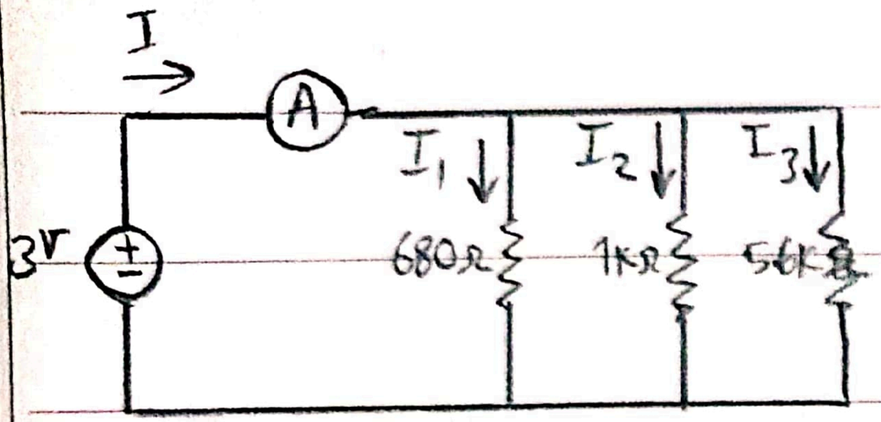
$R_{eq} = 7280\,\Omega$

$$V_{680\Omega} = \frac{680}{7280} \times 15 = 1.4$$

$$V_{1k\Omega} = \frac{1000}{7280} \times 15 = 2.1$$

$$V_{5.6k\Omega} = \frac{5600}{7280} \times 15 = 11.5$$

$\rightarrow V = 15\ V$ ✓



$$R_{1,680} = \frac{680 \times 1000}{1680} = 404.8$$

(5)

$$R_{eq} = \frac{404.8 \times 5600}{6004.8} = 377.5$$

$$I = \frac{3}{377.5} = 0.8 \ (A)$$

$$I_{5.6k\Omega} = \frac{680 \times 10^3}{680000 + 3808000 + 5600} = 0.5 \ (mA)$$ ✓