

In the circuit diagram below,  $R_1 = 22\Omega$ ,  $R_2 = 39\Omega$  and  $R_3 = 51\Omega$ . The battery is actually a D cell with a voltage of 1.5 V. What are  $I_1$ ,  $I_2$  and  $I_3$ ?

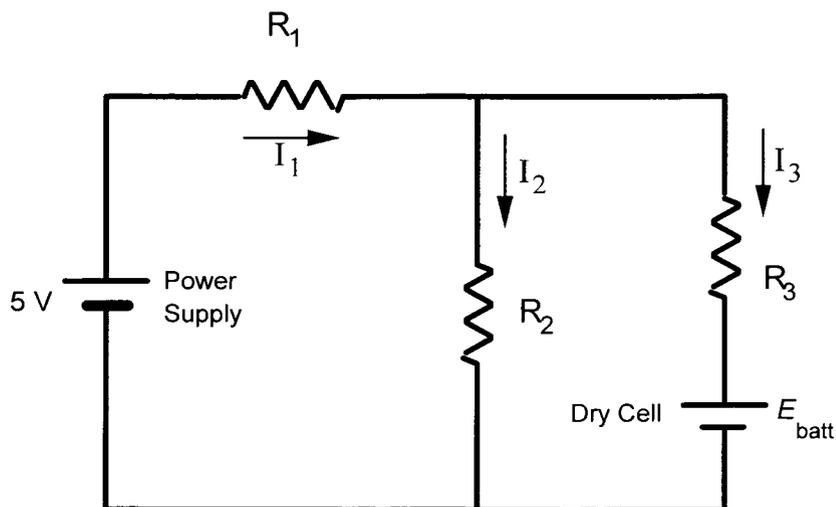


Fig. 4. Test of both Kirchhoff rules.

$$5V - 22\Omega I_1 - 39\Omega I_2 = 0$$

$$5V - 22\Omega I_1 - 51\Omega I_3 - 1.5V = 0$$

$$I_1 = I_2 + I_3$$

↓ Solve ( )

$$I_1 = 9.8 \times 10^{-2} \text{ A}$$

$$I_2 = 7.3 \times 10^{-2} \text{ A}$$

$$I_3 = 2.6 \times 10^{-2} \text{ A}$$