

Solutions

Each answer shows the steps, then the **result**.

2.1

- series: $R = 4\ \Omega + 6\ \Omega = \mathbf{10\ \Omega}$

2.2

- the current is the same at every point

3.1 B

- two resistors in parallel give a total smaller than the smaller one

3.2

(a) series: $R = 4\ \Omega + 8\ \Omega = 12\ \Omega$

- $I = V/R$

$$I = \frac{12\ \text{V}}{12\ \Omega} = \mathbf{1.0\ \text{A}}$$

(b) $V = IR$

$$V = (1.0\ \text{A})(8\ \Omega) = \mathbf{8.0\ \text{V}}$$

3.3

- parallel: $1/R = 1/R_1 + 1/R_2$

$$\frac{1}{R} = \frac{1}{6\ \Omega} + \frac{1}{12\ \Omega} = \frac{1}{4\ \Omega} \Rightarrow R = 4\ \Omega$$

- $I = V/R$

$$I = \frac{6\ \text{V}}{4\ \Omega} = \mathbf{1.5\ \text{A}}$$