

11 Combining resistors and circuit rules

– Part 2 — Answers

Answers

Work through these after you have tried the questions yourself.

2.1 $R_{\text{eq}} = R_1 + R_2 = 3.0 + 5.0 = 8.0 \, \Omega$.

2.2 $\frac{1}{R_{\text{eq}}} = \frac{1}{6} + \frac{1}{3} = \frac{1}{6} + \frac{2}{6} = \frac{3}{6}$, so $R_{\text{eq}} = 2.0 \, \Omega$.

2.3 $5.0 - 2.0 = 3.0 \, \text{A}$.

2.4 the junction rule comes from conservation of charge; the loop rule comes from conservation of energy.

2.5 smaller – adding a parallel path gives the current an extra route, so more current flows for the same voltage, meaning lower total resistance.