

92. The resistor by the letter i is above three other resistors; together, these four resistors are equivalent to a resistor $R = 10\ \Omega$ (with current i). As if we were presented with a maze, we find a path through R that passes through any number of batteries (10, it turns out) but no other resistors, which – as in any good maze – winds “all over the place.” Some of the ten batteries are opposing each other (particularly the ones along the outside), so that their net emf is only $\mathcal{E} = 40\ \text{V}$. The current through R is then $i = \mathcal{E}/R = 4.0\ \text{A}$, and is directed upward in the figure.