

72. The series pair of  $2.0\ \Omega$  resistors on the right reduce to  $R' = 4.0\ \Omega$ , and the parallel pair of identical  $4.0\ \Omega$  resistors on the left reduce to  $R'' = 2.0\ \Omega$ . The voltage across  $R'$  must equal that across  $R''$ ; thus,

$$\begin{aligned} V' &= V'' \\ i'R' &= i''R'' \\ i' &= \frac{1}{2}i'' \end{aligned}$$

where in the last step we divide by  $R'$  and simplify. This relation, plus the junction rule condition  $6.0\ \text{A} = i' + i''$  leads to the solution  $i'' = 4.0\ \text{A}$ . It is clear by symmetry that  $i = \frac{1}{2}i''$ , so we conclude  $i = 2.0\ \text{A}$ .