

77. (a) From  $P = V^2/R$  we find  $V = \sqrt{PR} = \sqrt{(10\text{ W})(0.10\,\Omega)} = 1.0\text{ V}$ .

(b) From  $i = V/R = (\mathcal{E} - V)/r$  we find

$$r = R \left( \frac{\mathcal{E} - V}{V} \right) = (0.10\,\Omega) \left( \frac{1.5\text{ V} - 1.0\text{ V}}{1.0\text{ V}} \right) = 0.050\,\Omega .$$