

12. We find the conductivity of Nichrome (the reciprocal of its resistivity) as follows:

$$\sigma = \frac{1}{\rho} = \frac{L}{RA} = \frac{L}{(V/i)A} = \frac{Li}{VA} = \frac{(1.0 \text{ m})(4.0 \text{ A})}{(2.0 \text{ V})(1.0 \times 10^{-6} \text{ m}^2)} = 2.0 \times 10^6 / \Omega \cdot \text{m} .$$