

28. We use $R \propto L/A$. The diameter of a 22-gauge wire is $1/4$ that of a 10-gauge wire. Thus from $R = \rho L/A$ we find the resistance of 25 ft of 22-gauge copper wire to be $R = (1.00 \, \Omega)(25 \text{ ft}/1000 \text{ ft})(4)^2 = 0.40 \, \Omega$.