

Breakout Exercise #1

Phone and data (i.e. Cat-5 cable) wire is normally 24 gauge (AWG) twisted pair cables. What is the diameter, in inches, of this wire and the total resistance of one-mile of this wire.



$$d_{\text{mils}} = \sqrt{A_{\text{CM}}} = \sqrt{404 \text{ CM}} = 20.1 \text{ mils}$$

$$d = 0.0201 \text{ in}$$

$$R = \frac{25.67 \, \Omega}{1000 \text{ ft}} \times 1 \text{ mile} \times \frac{5280 \text{ ft}}{1 \text{ mile}} = 135.54 \, \Omega$$