

## Breakout Exercise #1

Find the temperature at which the resistance of a copper conductor will increase to  $1\Omega$  from a level of  $0.8\Omega$  at  $20^\circ\text{C}$ .

$$R_1 = R_{20^\circ} [1 + \alpha_{20^\circ} (T_1 - 20^\circ\text{C})]$$

where :

$$R_{20^\circ} = 0.8 \Omega$$

$$\alpha_{20^\circ} = 0.00393$$

$$R_1 = 1.0 \Omega$$

$$1.0 \Omega = 0.8 [1 + 0.00393(T_1 - 20^\circ\text{C})] \Omega$$

$$T_1 = 83.61^\circ\text{C}$$