## Answer on Question #45045, Physics, Electric Circuits

**Task:** An electric toaster-oven is rated 120 volts, 1500 watts. What is the resistance of the heater coil when it operates under these conditions, and what is the current through it?

A) 12.5 Ω, 9.6 A

B) 1190 Ω, 8.0 A

C) 8.0 Ω, 15.0 A

D) 18.7 Ω, 8.0 A

E) 9.6 Ω, 12.5 A

**Solution:**

$$P = UI \Rightarrow I = \frac{P}{U} = \frac{1500}{120} = 12.5A$$

$$P = \frac{U^2}{R} \Rightarrow R = \frac{U^2}{P} = \frac{120^2}{1500} = 9.6\Omega$$

**Answer:** E) 9.6 Ω, 12.5 A