

Physics 1214, Homework #3: solutions

Answers to multiple choice questions: M1: C; M2: B.

$$\text{P1: } R = (1.68 \times 10^{-8} \Omega \cdot \text{m}) \frac{1 \text{ m}}{\pi(0.5 \times 10^{-3} \text{ m})^2} = 0.021 \Omega$$

$$\text{P2: } I_{\text{rms}} = I_0/\sqrt{2} = 2.12 \text{ A} \quad V_{\text{rms}} = \bar{P}/I_{\text{rms}} = 707 \text{ V}$$

$$\text{P3: } (0.12 \times 10^{-3}) \times 25 \times 365 \times 24 = \$26$$

$$\text{P4: } \bar{P} = (120 \text{ V})^2/36 \Omega = 400 \text{ W}$$