Name: _____

1. A capacitor has an electric field of 4.0×10^5 V/m between the plates. If the plates are separated by 5 mm, find
    a. The potential difference between the plates
    b. If the plate area is 2×10^{-4} m^2 and the plates only have air between them, what is the capacitance?
    c. What is the charge on the capacitor?

2. Starting with Ohms' Law, $\Delta V = IR$ and the fact that power is the product of current and potential difference, show that $P = I^2R$ or $P = \Delta V^2/R$.