

Physics 322 Homework Set #6 Winter 2009

Due in class 2/20/09

1. Problem 7.1 in your textbook.
2. Problem 7.7 in your textbook.
3. Problem 7.8 in your textbook.
4. Problem 7.10 in your textbook.
5. Problem 7.11 in your textbook.
6. A battery that provides an *EMF*, \mathcal{E} , has an internal resistance, r , such that the voltage, V , produced by the battery is given by $V = \mathcal{E} - Ir$, where I is the current being produced by the battery. (This is true for batteries and power supplies in general.) If we connect an external resistor, R , across the battery, what value should R have to produce the greatest possible power dissipation in the resistor, R ? (ie the most efficient transfer of energy from the battery to R)