1. The figure below shows six identical light bulbs. Rank the brightness of the bulbs in order. (Be sure to provide your reasoning).

2. Two resistors are connected to the same battery, as shown. Show that the total current from the battery, $I$, is proportional to the EMF of the battery, $V$, and find the proportionality constant.

3. The batteries used in most automobiles provide about 12 V. Their capacity* is typically rated by allowing them to provide a fixed current $I$ until they are fully discharged. The time to discharge, $T$, is measured in hours and is multiplied by $I$. The capacity of the battery is then specified in units of amp-hours (which are actually not a unit of energy, but that is what is used). If you have such a battery which is rated at 60 A·hr, how many Joules of electrical energy can it provide?

4. For the circuit shown, where the resistor values given are in ohms,
   (a) what is $R_1$, and
   (b) what is $R_2$?

5. (Extra Credit) The array of identical resistors shown is attached to a power source resulting in a current of 1 A in and out of the array. In the process, heat is generated in the resistors. What fraction of the total power dissipated is dissipated in the resistor labeled “B”?

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* Do not confuse a battery’s capacity with a capacitor’s capacitance. Though both are related to energy storage, they are different things.