Name _____   Date _____

PH 102 Quiz 2: Mostly Resistance

1. In order to maximize the percentage of the power that is delivered from a battery to a device, the internal resistance of the battery should be

○ As low as possible
○ As high as possible
○ The percentage does not depend on the internal resistance.

2. Two resistors connected in series are measured to have an equivalent resistance of $1000\,\Omega$. The same two resistors in *parallel* are measured to have an equivalent resistance of $250\,\Omega$. What are the values of the resistors?

○ One of the measurements is in error, this can't be true.
○ One is $750\,\Omega$, the other is $250\,\Omega$.
○ Both are $500\,\Omega$.
○ One is $200\,\Omega$, the other is $50\,\Omega$.
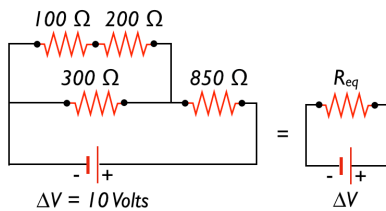
3. What is R_eq for the circuit at the left?

○ $1000\,\Omega$
○ $500\,\Omega$
○ $1400\,\Omega$
○ $1150\,\Omega$
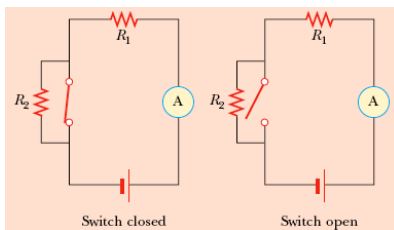
4. With the switch in the circuit of the figure at left, there is no current in R_2, because the current has an alternate zero-resistance path through the switch. There is current in R_1 and this current is measured with the ammeter (a device for measuring current) at the right side of the circuit. If the switch is then opened, there is current in R_2 . What happens to the reading on the ammeter when the switch is opened?

○ the reading goes up
○ the reading goes down
○ the reading does not change
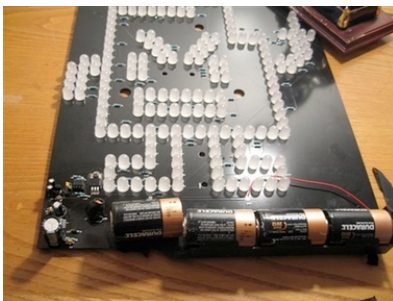
5. Consider the suspicious device at left. It takes approximately 135 light-emitting diodes (LEDs) to make up Err, second in command of the Mooninite Army. If each LED has a resistance of $200\,\Omega$ while lit, and all of the LEDs are in parallel, what is the equivalent resistance of Err?

○ $27000\,\Omega$
○ $1.5\,\Omega$
○ $12\,\Omega$
○ $200\,\Omega$