Print Edit in MsWord

Name: _____ Date: _____ 10.4

# Ohm's Law Problems

1. (a) What is the voltage across the resistor if the two cells are each 1.5 V in Figure 1?

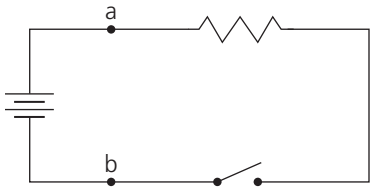


**Figure 1**

(b) If a current of 0.10 A is measured at point *a*, what is the resistance of the resistor? What is the current at *b*?

2. If a toaster has a resistance of 220 Ω, how much current will it draw from a 110 V outlet?

3. A calculator runs on two 6.0 V dry cells connected in parallel. If the calculator draws 0.001 A, how many milliamps (mA) does it draw? What is the effective resistance of the calculator?

4. A resistor has a value of 100 Ω. If a current of 5 mA passes through it, what is the applied voltage?

5. A resistance has a voltage of 10 mV (millivolts) applied to it. The current through the resistance is 0.5 mA. What is the value of the resistance?

6. A hair dryer uses a current of 10 A when plugged into a 120 V outlet. What is the resistance of the hair dryer?

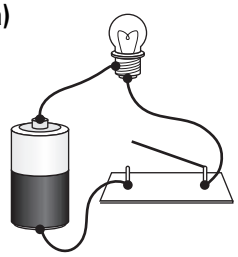
Copyright © 2008 by Thomson Nelson

Name: _____ Date: _____ 10.4

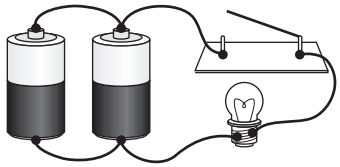
## Ohm's Law Problems (continued)

7. Draw circuit diagrams for the following circuits. The resistance of the filament in each light bulb is 8.2 Ω and the voltage of each cell is 1.5 V. Determine the current through the bulbs when the switch is closed in each circuit.

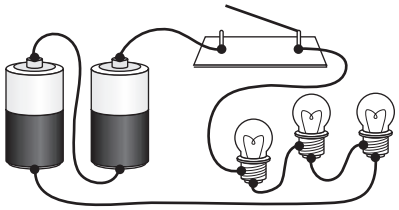
**a)**



**b)**



**c)**



8. Complete the following chart.

| Voltage (V) | Current (A or mA) | Resistance (Ω) |
|---|---|---|
| _____ | 5 A | 200 |
| 250 | _____ A | 500 |
| 4.5 | 900 mA | _____ |
| _____ | 250 mA | 4.0 |
| 4.0 | _____ A | 2.0 |
| 12 | 400 mA | _____ |
| 15 | _____ A | 30 |
| 9 | _____ mA | 180 |
| 12 | 600 mA | _____ |
| _____ | 50 mA | 1.0 |
| 6 | _____ A | 2 |
| 12 | 750 mA | _____ |
| 3.0 | _____ mA | 100 |
| _____ | 200 mA | 250 |
| 10 | _____ A | 50 |


Copyright © 2008 by Thomson Nelson