

## 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?

(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*?

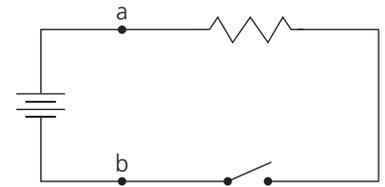


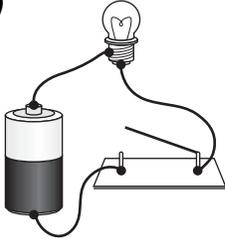
Figure 1

2. If a toaster has a resistance of  $220\ \Omega$ , 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  $100\ \Omega$ . 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?

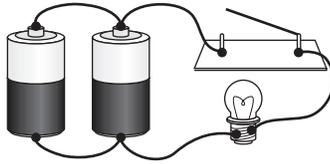
## Ohm's Law Problems (continued)

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

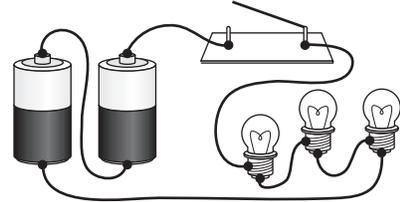
a)



b)



c)



8. Complete the following chart.

Voltage (V)	Current (A or mA)	Resistance ( $\Omega$ )
_____	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