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# Electrical Circuits practice worksheet

Part A. Use the word bank to label each of the circuit symbols shown below.

Ammeter

Battery

Motor

Bulb

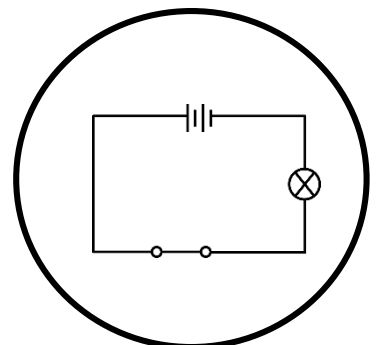
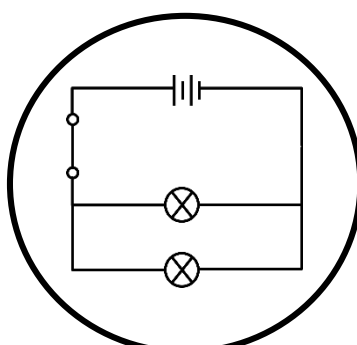
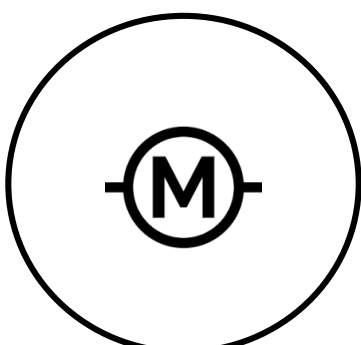
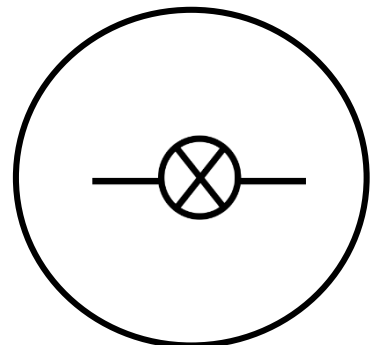
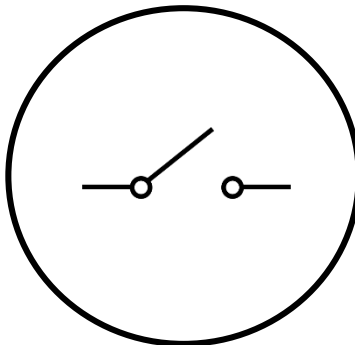
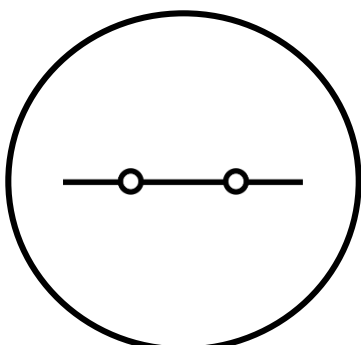
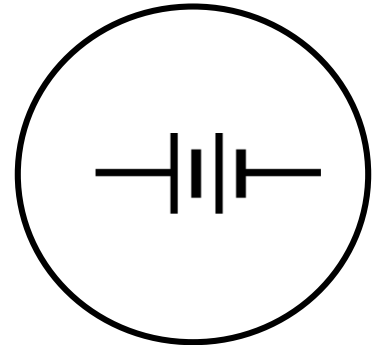
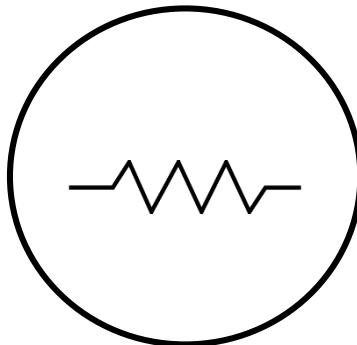
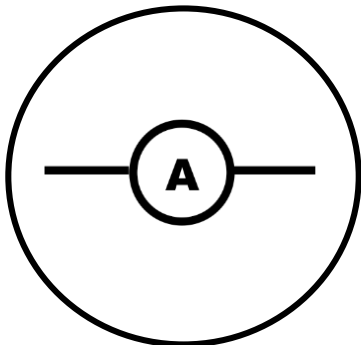
Closed switch

Series circuit

Resistor

Open switch

Parallel circuit



# Electrical Circuits answer key

Part A. Use the word bank to label each of the circuit symbols shown below.

Ammeter

Battery

Motor

Bulb

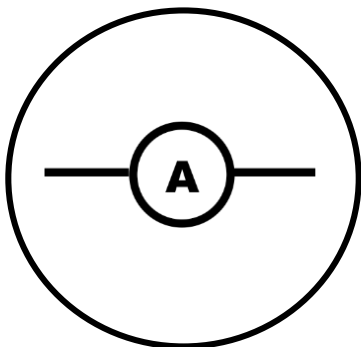
Closed switch

Series circuit

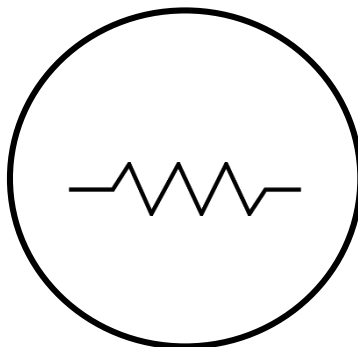
Resistor

Open switch

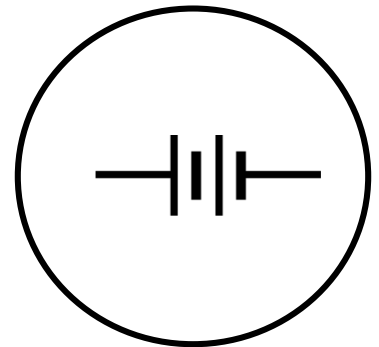
Parallel circuit



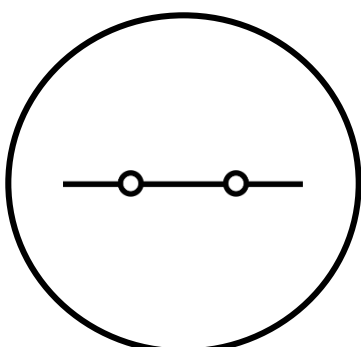
Ammeter



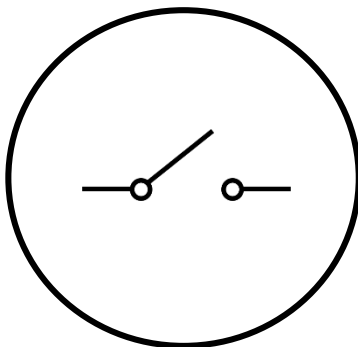
Resistor



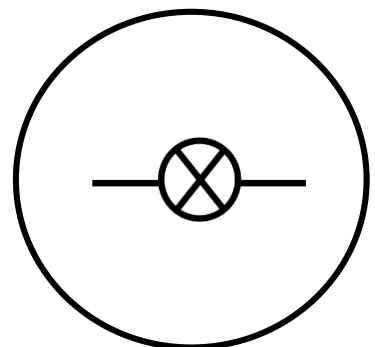
Battery



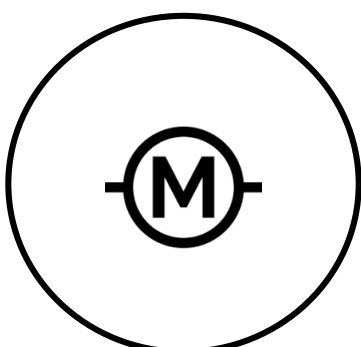
Closed switch



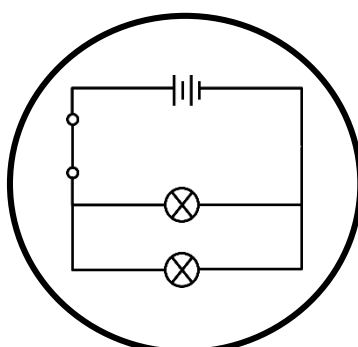
Open switch



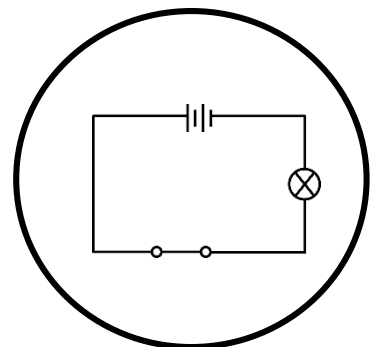
Bulb



Motor



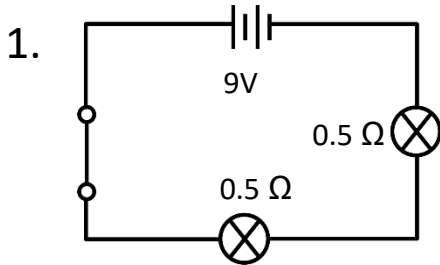
Parallel circuit



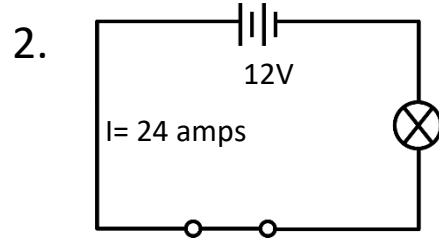
Series circuit

Part B. Use the Ohm's Law formula to answer the following questions.

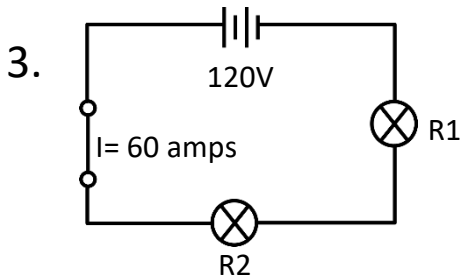
$$V \text{ (voltage)} = I \text{ (current)} \times R \text{ (resistance)}$$



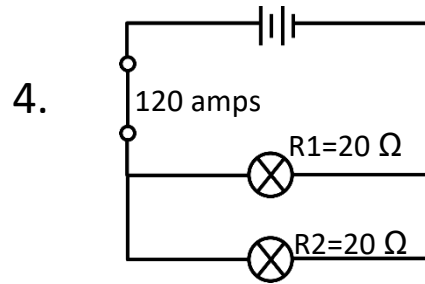
$I =$  \_\_\_\_\_



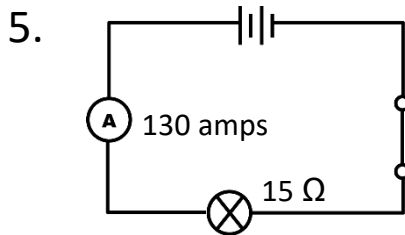
$R =$  \_\_\_\_\_



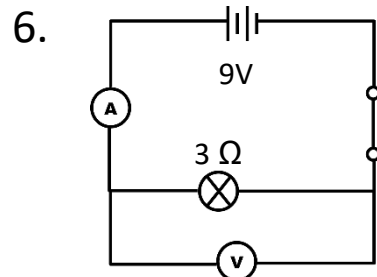
$R1 =$  \_\_\_\_\_



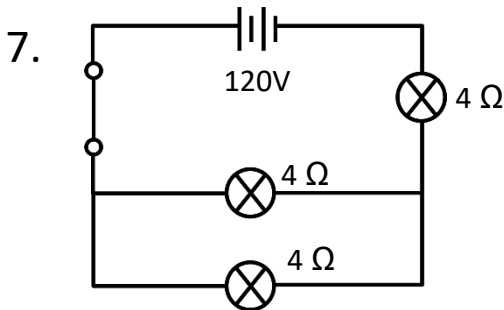
$V =$  \_\_\_\_\_



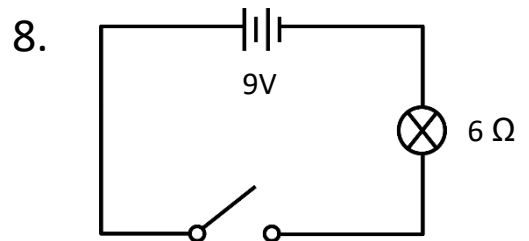
$V =$  \_\_\_\_\_



$I =$  \_\_\_\_\_



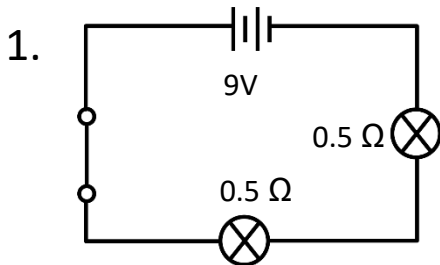
$I =$  \_\_\_\_\_



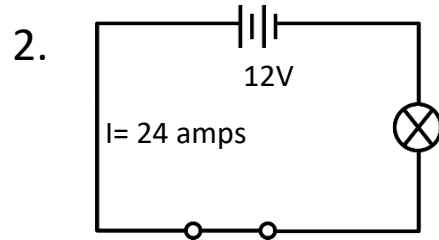
$I =$  \_\_\_\_\_

Part B. Use the Ohm's Law formula to answer the following questions.

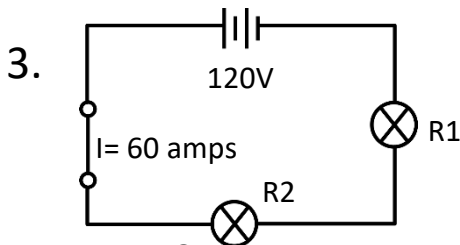
$$V \text{ (voltage)} = I \text{ (current)} \times R \text{ (resistance)}$$



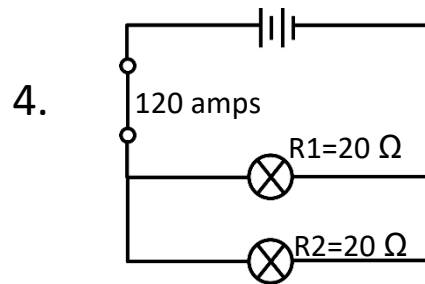
$I = 9 \text{ amps}$



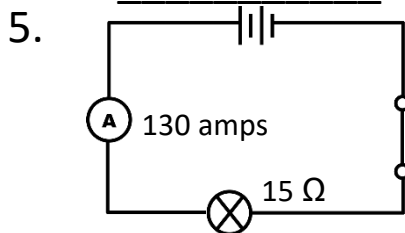
$R = 0.5 \Omega$



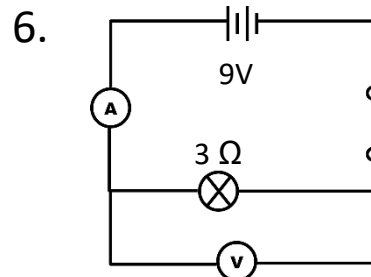
$R1 = 1 \Omega$  (1/2 of the total resistance.  
Since there are 2 resistors and the total resistance is 2, each resistor provides 1Ω of resistance)



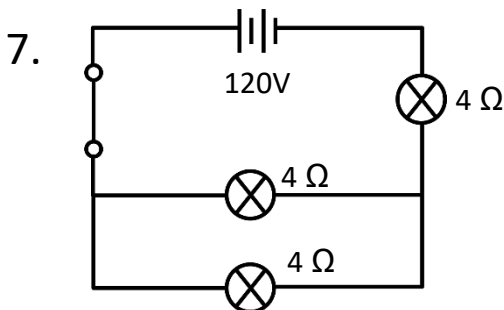
$V = 4800 \text{ V}$



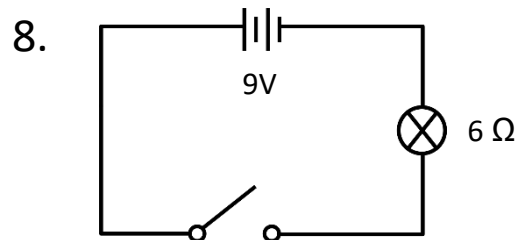
$V = 1950 \text{ V}$



$I = 3 \text{ amps}$



$I = 10 \text{ amps}$



$I = \text{no current will flow because this is an open circuit}$

Part C. Answer the following word problems using the formula below.

$$V \text{ (voltage)} = I \text{ (current)} \times R \text{ (resistance)}$$

1. Calculate the current flowing through the circuit of a radio that has a resistance of  $20\Omega$  and is powered by a 3 volt battery. (show your work)

2. Calculate the voltage difference in a circuit with a resistance of  $50\Omega$  if the current is 2.5 amps. (Show your work)

3. Calculate the resistance of a 9 volt battery that provides a current of 3 amps through a conductor. (Show your work)

4. Complete the chart.

I (amps)	V (volts)	R (Ohms)
0.5		30
	120	5
6	24	
16		2
	1.5	10

Part C. Answer the following word problems using the formula below.

$$V \text{ (voltage)} = I \text{ (current)} \times R \text{ (resistance)}$$

1. Calculate the current flowing through the circuit of a radio that has a resistance of  $20\Omega$  and is powered by a 3 volt battery. (show your work)

$$\begin{aligned} I &= V \div R \\ &= 3 \div 20 \\ &= 0.15 \text{ amps} \end{aligned}$$

2. Calculate the voltage difference in a circuit with a resistance of  $50\Omega$  if the current is 2.5 amps. (Show your work)

$$\begin{aligned} V &= I \times R \\ &= 2.5 \times 50 \\ &= 125 \text{ volts} \end{aligned}$$

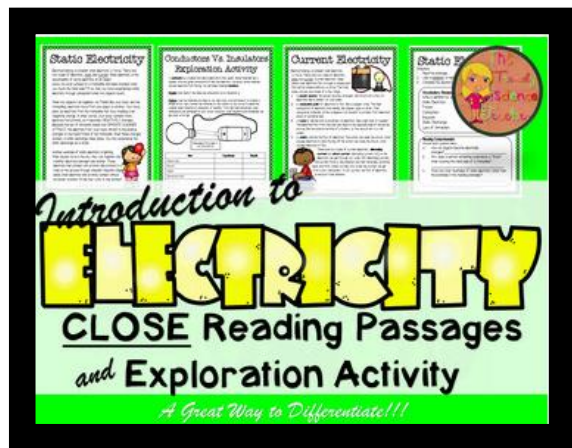
3. Calculate the resistance of a 9 volt battery that provides a current of 3 amps through a conductor. (Show your work)

$$\begin{aligned} R &= V \div I \\ &= 9 \div 3 \\ &= 3 \Omega \end{aligned}$$

4. Complete the chart.

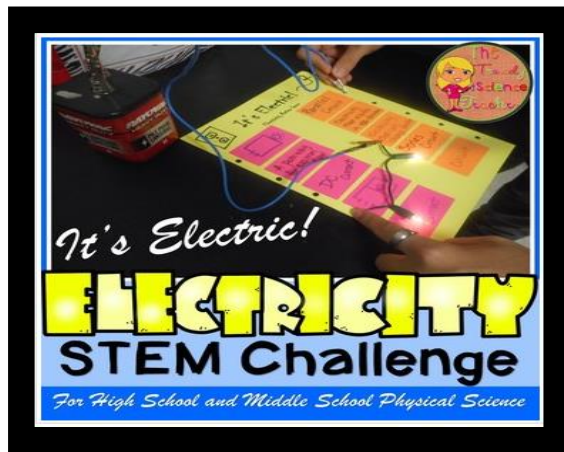
<b>I (amps)</b>	<b>V (volts)</b>	<b>R (Ohms)</b>
0.5	<b>15</b>	30
<b>24</b>	120	5
6	24	<b>4</b>
16	<b>32</b>	2
<b>0.15</b>	1.5	10

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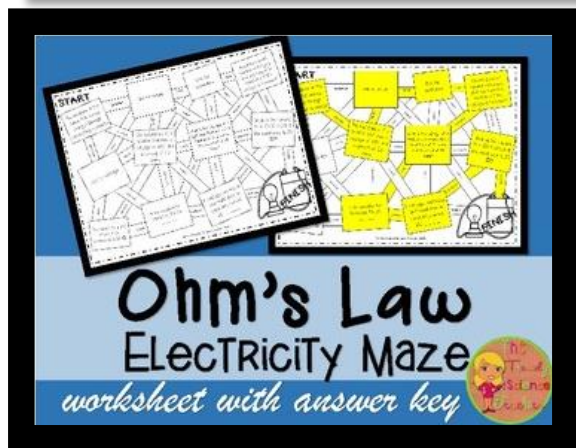


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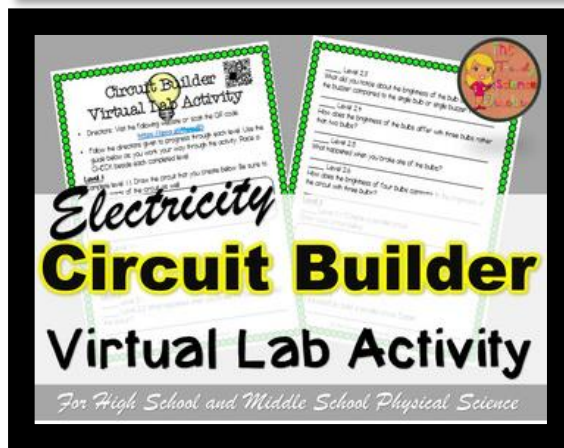
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