

Automotive Technology

USING A DIGITAL VOLT-OHM-METER

(DVOM=Digital Volt-Ohm Meter, DMM=Digital Multi-Meter, VOM=Volt-Ohm Meter, or VM=Voltmeter)

Name

Date

Period / Team


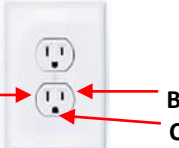
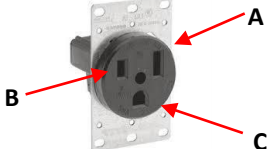
1. For instructional purposes electricity can be compared to _____?
2. Fill in the following blanks:
 - A. Electricity is the flow of _____ along a conductor.
 - B. _____ is the **force** that pushes the electrons along a conductor.
 - C. _____ is a measurement of the **volume** of electron flow.
 - D. _____ is the measurement of **resistance** to the flow of electrons.
3. Fill in the symbols for the following:
 - A. Direct Current Voltage _____.
 - B. Alternating Current Voltage _____.
 - C. Ohms _____.
4. DC voltage flows in only _____.
5. AC voltage flows _____ & _____.
6. Inspect VOM leads and determine where to hook up to VOM.
Connect Black Lead to _____
Connect Red Lead to _____
7. Determine VOM Battery Location: _____
8. Always estimate what readings you anticipate getting and then set the meter to a value _____ than what you are expecting to measure.
9. Meters that have self-adjusting range settings are called _____.
10. What scale would you use to test the voltage of a 12v battery? _____.
11. To test the **continuity** or "connectedness" of a circuit, you should use what scale? (**circle one**) DC
AC Amps Ohms.
12. You should **never** use which scale when the power is on or a battery is connected to the circuit?
(**circle one**) DC AC Amps Ohms.
13. Milli-amp scales can be used for what test? _____
14. A Diode is a _____ for electricity.
15. Define the following terms in relation to electrical current flow:

- a. What does "infinity ohms" mean? _____
- b. What does "open circuit" mean? _____
- c. What does "closed circuit" mean? _____
- d. What does "short circuit" mean? _____

16. Car batteries are for _____ electricity, but they do not produce it.

17. Create a battery voltage/percent-full graph from the chart in the DVOM power point:

DC Voltage											
12.70 V											●
___:___ V											
___:___ V											
___:___ V											
___:___ V											
___:___ V											
___:___ V											
___:___ V											
___:___ V											
11.94V											
11.90V	●										
Percent Full	◀0%	◀10%	◀20%	◀30%	◀40%	◀50%	◀60%	◀70%	◀80%	◀90%	◀100%

<p>18. What setting on the VOM would you use to measure the voltage of a D cell battery? _____ Measure the voltage of a D cell battery and write down your measured voltage: _____</p>	<p>19. What setting on the VOM would you use to measure the voltage of an AA battery? _____ Measure the voltage of an AA battery and write down your measured voltage: _____</p>	<p>20. What setting on the VOM would you use to measure the voltage of a 9V battery? _____ Measure the voltage of a 9V battery and write down your measured voltage: _____</p>
<p>22. What setting on the VOM would you use to measure the voltage of a hearing-aid battery? _____ Measure the voltage of a hearing-aid battery and write down your measured voltage: _____</p> <div style="text-align: center;">  </div>	<p>23. What setting would you use to measure voltage from a 110 outlet in the shop? _____ <u>ONLY WITH INSTRUCTOR</u></p> <div style="text-align: center;">  </div> <p><u>SUPERVISION,</u> Measure the voltages: From A to B _____ From A to C _____ From B to C _____</p>	<p>24. What setting would you use to measure voltage from a 220 outlet in the shop? _____</p> <div style="text-align: center;">  </div> <p><u>ONLY WITH INSTRUCTOR SUPERVISION,</u> Measure the voltages: From A to B _____ From A to C _____ From B to C _____</p>
<p>25. Measure the battery voltage in a shop vehicle your instructor chooses and write voltage here _____. Using your battery voltage graph above, how full (%) is the battery? _____%</p>		

Explain three things you determined about using the DVOM:

- 1 _____
- 2 _____
- 3 _____