**CDX Distance Learning**

**Exercise #8**

**DMM Experiments, Part I**

**Student Name:** Click or tap here to enter text.

Click or tap the check box next to the answer choice that best completes the statement or answers the question. Viewing the animation will be required to answer the following question(s) correctly. Read the question and use the link provided to open the animation. Follow the directions in the questions and select the correct answer. When complete, close the animation window and move on to the next question(s).

**[Multimeter Animation 1](https://www.jblearning.com/navigate/filelookup.ashx?fileid=b83d9618-62d9-4eef-bb67-aace0d80e8a2" \t "_blank)**

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| 1. What is the voltage drop across the first (larger) bulb?   |  |  |  | | --- | --- | --- | |  | a. | 12 V | |  | b. | 2.73 V | |  | c. | 9.27 V | |  | d. | 0 V | |

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| 2. What is the voltage drop across the second (smaller) bulb?   |  |  |  | | --- | --- | --- | |  | a. | 12 V | |  | b. | 0 V | |  | c. | 2.73 V | |  | d. | 9.27 V | |

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| 3. How many amps does the circuit draw?   |  |  |  | | --- | --- | --- | |  | a. | 0.3 A | |  | b. | 0.4 A | |  | c. | 3 A | |  | d. | 5 A | |

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| 4. What is the resistance of the second (smaller) bulb?   |  |  |  | | --- | --- | --- | |  | a. | 3.7 ohms | |  | b. | 1.9 ohms | |  | c. | 5 ohms | |  | d. | 7 ohms | |

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| 5. When the circuit is ON, why is the first bulb not lit?   |  |  |  | | --- | --- | --- | |  | a. | The bulb is open | |  | b. | The bulbs are wired in parallel | |  | c. | There is a difference in resistance values between the two bulbs | |  | d. | The fuse is blown | |

**[Multimeter Animation 2](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/MM_Multimeter%20Experiments_05_06_2019/MM_02_C1A/MM_02_C1A.html" \t "_blank)**

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| 6. What is the voltage drop across the bulb with the circuit turned on?   |  |  |  | | --- | --- | --- | |  | a. | 2 V | |  | b. | 10 V | |  | c. | 0 V | |  | d. | 12 V | |

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| 7. What is the resistance across the bulb?   |  |  |  | | --- | --- | --- | |  | a. | 0.5 ohms | |  | b. | 5.0 ohms | |  | c. | 50 ohms | |  | d. | 5 k ohms | |

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| 8. How many amps does this circuit draw?   |  |  |  | | --- | --- | --- | |  | a. | 12 A | |  | b. | 31 A | |  | c. | 0.5 ohms | |  | d. | 0.31 A | |

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| 9. What is the voltage drop across the switch in the ON position?   |  |  |  | | --- | --- | --- | |  | a. | 6 V | |  | b. | 12 V | |  | c. | 12 A | |  | d. | 0 V | |

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| 10. What is the resistance across the fuse in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0 V | |  | b. | 0 A | |  | c. | 0 ohms | |  | d. | 12 ohms | |

**[Multimeter Animation 3](https://www.jblearning.com/navigate/filelookup.ashx?fileid=dc3236b0-eef3-4010-af72-56ab786a89bb" \t "_blank)**

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| 11. What is the voltage drop across the first lightbulb?   |  |  |  | | --- | --- | --- | |  | a. | 3 V | |  | b. | 6 V | |  | c. | 9 V | |  | d. | 12 V | |

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| 12. What is the voltage drop across both lightbulbs?   |  |  |  | | --- | --- | --- | |  | a. | 3 V | |  | b. | 6 V | |  | c. | 9 V | |  | d. | 12 V | |

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| 13. How many amps do the two lightbulbs draw?   |  |  |  | | --- | --- | --- | |  | a. | 0.25 A | |  | b. | 0.480 A | |  | c. | 0.5 A | |  | d. | 1 A | |

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| 14. What is the resistance across the first bulb?   |  |  |  | | --- | --- | --- | |  | a. | 1.9 ohms | |  | b. | 3.2 ohms | |  | c. | 7.3 ohms | |  | d. | 19 ohms | |

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| 15. What is the voltage drop across the switch with the switch in the OFF position?   |  |  |  | | --- | --- | --- | |  | a. | 0 V | |  | b. | 3 V | |  | c. | 9 V | |  | d. | 12 V | |

**[Multimeter Animation 4](https://www.jblearning.com/navigate/filelookup.ashx?fileid=5305610f-46ab-4da0-9102-88b42fee4562" \t "_blank)**

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| 16. What is the available voltage at the switch?   |  |  |  | | --- | --- | --- | |  | a. | 3 V | |  | b. | 6 V | |  | c. | 9 V | |  | d. | 12 V | |

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| 17. What is the voltage drop across the first (smaller) bulb?   |  |  |  | | --- | --- | --- | |  | a. | 1.75 V | |  | b. | 2.73 V | |  | c. | 9.27 V | |  | d. | 12 V | |

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| 18. What is the voltage drop across the second (larger) bulb?   |  |  |  | | --- | --- | --- | |  | a. | 1.45 V | |  | b. | 2.73 V | |  | c. | 9.27 V | |  | d. | 12 V | |

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| 19. What is the amperage flow in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0.1 A | |  | b. | 0.2 A | |  | c. | 20 mA | |  | d. | 0.3 A | |

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| 20. What is the resistance of the first (smaller) bulb?   |  |  |  | | --- | --- | --- | |  | a. | 1.9 ohms | |  | b. | 3.7 ohms | |  | c. | 4.8 ohms | |  | d. | 7.25 ohms | |

**[Multimeter Animation 5](https://www.jblearning.com/navigate/filelookup.ashx?fileid=0796856e-2234-4e0f-b4c3-0d6661cac544" \t "_blank)**

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| 21. What is the resistance across the first bulb?   |  |  |  | | --- | --- | --- | |  | a. | 0.5 ohms | |  | b. | 5 ohms | |  | c. | 24 ohms | |  | d. | 2.4 ohms | |

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| 22. What is the resistance across the second bulb?   |  |  |  | | --- | --- | --- | |  | a. | 1.9 ohms | |  | b. | 2.4 ohms | |  | c. | 19 ohms | |  | d. | 24 ohms | |

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| 23. What is the voltage drop across the first bulb?   |  |  |  | | --- | --- | --- | |  | a. | 0 V | |  | b. | 1.664 V | |  | c. | 10.23 V | |  | d. | 12 V | |

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| 24. What is the voltage drop across the second bulb?   |  |  |  | | --- | --- | --- | |  | a. | 0 V | |  | b. | 1.664 V | |  | c. | 10.23 V | |  | d. | 12 V | |

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| 25. What is the measured voltage drop across both bulbs?   |  |  |  | | --- | --- | --- | |  | a. | 0 V | |  | b. | 1.664 V | |  | c. | 10.23 V | |  | d. | 12 V | |

**[Multimeter Animation 6](https://www.jblearning.com/navigate/filelookup.ashx?fileid=1ad36c72-3088-478c-ad1f-fd5402800916" \t "_blank)**

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| 26. What is the voltage drop across the bulb?   |  |  |  | | --- | --- | --- | |  | a. | 0 V | |  | b. | 6 V | |  | c. | 12 V | |  | d. | 12 A | |

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| 27. What is the resistance of the bulb in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0 ohms | |  | b. | 1.9 ohms | |  | c. | 12 V | |  | d. | 1.9 watts | |

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| 28. What is the voltage drop for the entire circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0 V | |  | b. | 12 V | |  | c. | 12 ohms | |  | d. | 12 A | |

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| 29. What is the current flow of this circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0.71 A | |  | b. | 710 kA | |  | c. | 0.14 A | |  | d. | 1400 kA | |

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| 30. What is the resistance of the switch in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0 V | |  | b. | 12 A | |  | c. | 0 ohms | |  | d. | 12 ohms | |

**[Multimeter Animation 7](https://www.jblearning.com/navigate/filelookup.ashx?fileid=a2cd8b1a-ea20-4665-8eff-9cfa5ce4525c" \t "_blank)**

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| 31. What is the resistance of the resistor in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 120 ohms | |  | b. | 12 k ohms | |  | c. | 0.12 ohms | |  | d. | 120 V | |

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| 32. What is the available voltage in this circuit?   |  |  |  | | --- | --- | --- | |  | a. | 1 V | |  | b. | 12 V | |  | c. | 12 watts | |  | d. | 12 A | |

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| 33. What is the voltage drop across the resistor in the circuit with the switch ON?   |  |  |  | | --- | --- | --- | |  | a. | 1 V | |  | b. | 12 ohms | |  | c. | 1 A | |  | d. | 12 V | |

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| 34. What is the current flow for this circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0.1 A | |  | b. | 1 A | |  | c. | 10 A | |  | d. | 0.10 kA | |

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| 35. What is the voltage drop across the resistor with the switch OFF?   |  |  |  | | --- | --- | --- | |  | a. | 12 V | |  | b. | 0 V | |  | c. | 12 ohms | |  | d. | 12 A | |

**[Multimeter Animation 8](https://www.jblearning.com/navigate/filelookup.ashx?fileid=517b7a10-32bc-446a-81a3-1255af34b75b" \t "_blank)**

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| 36. What is the resistance of the lightbulb in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 5 ohms | |  | b. | 50 ohms | |  | c. | 0.05 ohms | |  | d. | 0.5 ohms | |

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| 37. What is the resistance of the resistor in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 10 ohms | |  | b. | 100 ohms | |  | c. | 1000 ohms | |  | d. | 0.1 ohms | |

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| 38. What is the voltage drop across the lightbulb in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0.067 ohms | |  | b. | 67 ohms | |  | c. | 6.7 V | |  | d. | 0.067 V | |

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| 39. What is the voltage drop across the resistor in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0.067 V | |  | b. | 12 V | |  | c. | 6.7 V | |  | d. | 11.93 V | |

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| 40. What is the current draw of the entire circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0.12 A | |  | b. | 12 A | |  | c. | 12 V | |  | d. | 0.120 watts | |

**[Multimeter Animation 9](https://www.jblearning.com/navigate/filelookup.ashx?fileid=c8ece572-01cb-4801-a0af-0f5234bb0100" \t "_blank)**

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| 41. What is the resistance of the resistor in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 1 ohm | |  | b. | 10 ohms | |  | c. | 100 ohms | |  | d. | 1 k ohms | |

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| 42. What is the available voltage at the power source?   |  |  |  | | --- | --- | --- | |  | a. | 1 V | |  | b. | 12 V | |  | c. | 1 A | |  | d. | 1 ohm | |

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| 43. What is the voltage drop in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 1 V | |  | b. | 12 V | |  | c. | 1 A | |  | d. | 12 A | |

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| 44. What is the current flow in the entire circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0.12 A | |  | b. | 1.2 A | |  | c. | 0.004 A | |  | d. | 4 A | |

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| 45. What is the measured voltage drop across the switch in the OFF position?   |  |  |  | | --- | --- | --- | |  | a. | 1 V | |  | b. | 12 V | |  | c. | 1.2 V | |  | d. | 0 V | |

**[Multimeter Animation 10](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/MM_Multimeter%20Experiments_05_06_2019/MM_11_C1A/MM_11_C1A.html" \t "_blank)**

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| 46. What is the available voltage at the circuit protection device?   |  |  |  | | --- | --- | --- | |  | a. | 0 V | |  | b. | 5 V | |  | c. | 12 V | |  | d. | 12 A | |

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| 47. What is the resistance value of the resistor in the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 1 ohm | |  | b. | 100 ohms | |  | c. | 0.001 ohms | |  | d. | 1.000 k ohms | |

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| 48. What is the voltage drop across the resistor in this circuit?   |  |  |  | | --- | --- | --- | |  | a. | 1 V | |  | b. | 12 V | |  | c. | 1 V | |  | d. | 1.2 V | |

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| 49. What is the circuit amperage?   |  |  |  | | --- | --- | --- | |  | a. | 0.012 A | |  | b. | 12 A | |  | c. | 1.2 A | |  | d. | 0.024 A | |

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| 50. With the power supply switched to 24 volts, what is the amperage of the circuit?   |  |  |  | | --- | --- | --- | |  | a. | 0.012 A | |  | b. | 2.4 A | |  | c. | 1.2 A | |  | d. | 0.024 A | |