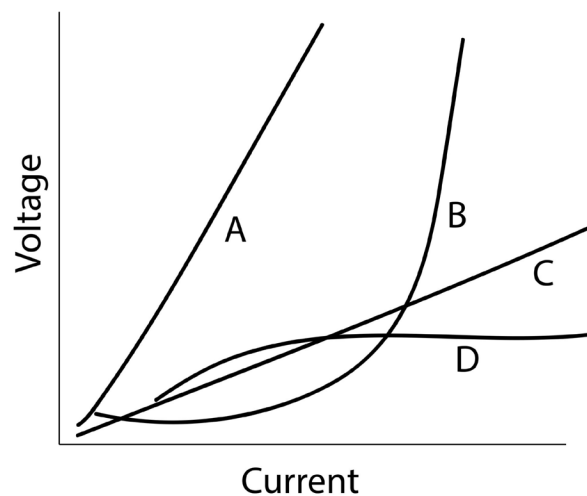




Work each of the following problems. SHOW ALL WORK.

4. To keep cool in the summer months, you decide to design and build your own hand-held fan. The fan's electrical circuit will run off of 4 AA batteries (each with a voltage of 1.5 V) and must not exceed 50 mA of current. You visit your local Radio Shack and find that resistors are sold in five varieties: 5 Ohm, 10 Ohm, 12 Ohm, 20 Ohm, 50 Ohm. Each resistor costs 8 cents. What set of resistors should you buy to minimize cost?
5. As part of an engineering team at Space-X designing microcircuitry to control rocket launch angle, you must assess the power budget needed to operate 4 fin-control systems. Each system requires 0.16 micro Amperes for circuits with 3.4 milliOhms of resistance. How much total voltage is needed to supply these circuits?
6. Which of the following materials - A, B, C, D - are Ohmic? Circle all that apply.

- a. A
- b. B
- c. C
- d. D



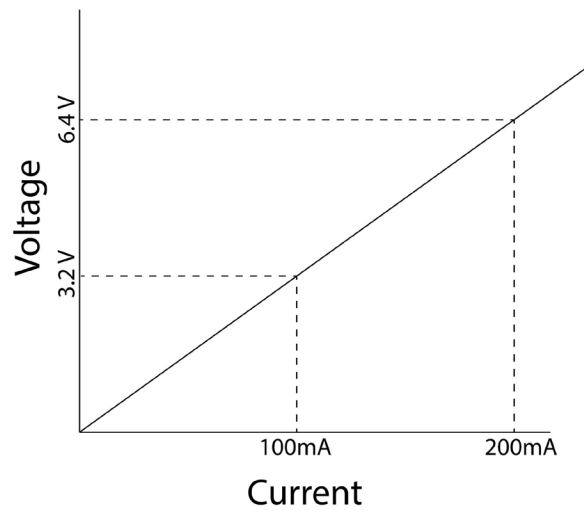
questions continued on next page

Unit 5F\_Practice Problems STUDENT

Work each of the following problems. SHOW ALL WORK.

7. In an electrical circuit, what happens to the current flowing through the wire if the initial voltage of 18 V is doubled, and the initial resistance of 35 Ohms is reduced by a factor of 4?

8. This graph shows the relationship between current and voltage for an unknown metal. What is the resistance of the metal?



9. If a current of 1.1 A flows through a resistor of 7 Ohms and length 3 m, what is the electric field strength inside the resistor?