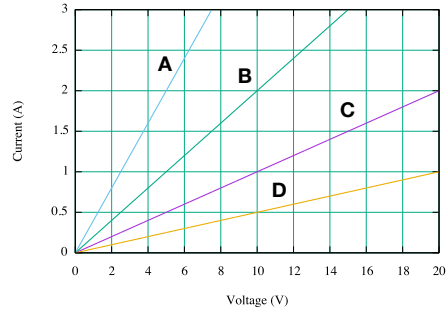
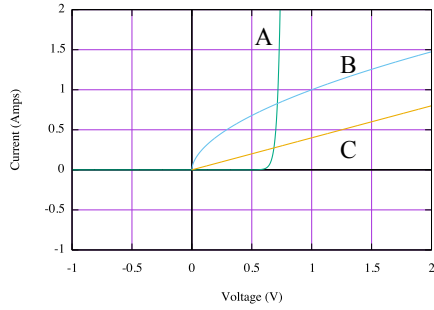


1. Our unit of electric potential is the
 - (a) volt.
 - (b) ampere.
 - (c) ohm.
 - (d) watt.
2. Our unit of electric charge is the amount of charge that 6.24×10^{18} electrons have. It is called the
 - (a) ampere.
 - (b) watt.
 - (c) Visa or Master Card.
 - (d) Coulomb.
3. Another way to say 2 Coulombs passing by per second is to say
 - (a) 2 Watts.
 - (b) 2 Volts.
 - (c) 2 Amperes.
 - (d) 2 kilowatts.
4. Another way to say 120 Joules of potential energy for every coulomb at this location is to say
 - (a) 120 Watts.
 - (b) 120 Volts.
 - (c) 120 Amperes.
 - (d) 120 kilowatts.
5. A current of 4 ampere means that charge is flowing through a wire at a rate of _____ Coulombs per second.
6. When an amount of charge of 15 Coulombs flows past a point in a circuit in five seconds, the current is _____.
7. When a lamp's plug is plugged into an outlet, the hot side of the lamp wire is raised to 120 V. This means that each coulomb of charge that flows through that hot wire has _____ Joules of electric potential energy.
8. When a current of 2 Coulombs/second flows past a location in a wire that has a potential of 120 Joules/Coulomb, what is the rate that energy flows past this location?

9. The Samsung Galaxy A9 comes with a 3,800-milliampere-hour battery when fully “charged” with energy. How much electric charge in Coulombs can flow from this battery as it completely discharges (*i.e.* loses all its stored energy)?

For Problems 10 and 11



10. For the following question refer to the I-V plots in the graph above on the left.
- Which of the circuit elements is ohmic? _____
 - Find the resistance of the ohmic circuit element. _____
 - Which of the circuit elements that produced the following I-V curves has an increasing resistance as current increases? _____
 - Which of the circuit elements that produced the following I-V curves has a decreasing resistance as current increases? _____
 - Which of the I-V plots shown above was produced by a diode? _____
 - Which of the I-V plots shown above was produced by a light bulb? _____
 - What is the usual purpose of a diode in a circuit?
11. Find the resistances of the four resistors that yielded the I-V plots shown above. on the right.

$$R_A = \text{_____} \quad R_B = \text{_____} \quad R_C = \text{_____} \quad R_D = \text{_____}$$