

Assessment

Electric Forces and Fields**Section Quiz: Electric Charge**

Write the letter of the correct answer in the space provided.

- _____ 1. Objects become electrically charged as a result of the transfer of
- protons.
 - electrons.
 - neutrons.
 - nuclei.
- _____ 2. The nucleus of an atom has _____ electric charge.
- a positive
 - a negative
 - a neutral
 - both positive or negative
- _____ 3. Rubbing a balloon through dry hair gives the balloon a _____ electric charge.
- positive
 - negative
 - neutral
 - balanced
- _____ 4. Robert Millikan's research showed that electric charge is quantized, which means that
- a proton has a charge equal to that of two electrons.
 - an electron can have any amount of electric charge.
 - all charge is an integer multiple of a fundamental charge.
 - all charge is an integer multiple of the charge of a neutron.
- _____ 5. A student rubs a certain rod with plastic wrap. The rod then repels a glass rod that has been rubbed with silk and attracts a rubber rod that has been rubbed with fur. This observation shows that the first rod has a(n) _____ charge.
- positive
 - negative
 - neutral
 - undetermined

Electric Forces and Fields *continued*

- _____ **6.** A negatively charged rod is brought near a metal sphere that is *not* grounded. When the rod is taken away, the metal sphere will have
- a.** a positive charge.
 - b.** a negative charge.
 - c.** an induced charge.
 - d.** no charge.
- _____ **7.** A conductor, such as a copper rod, can be charged by contact with another charged object only if the metal rod is
- a.** an insulator.
 - b.** grounded to Earth.
 - c.** insulated from Earth.
 - d.** positively charged.
- _____ **8.** Uncharged objects can be attracted by a charged object because the uncharged objects acquire a surface charge by the process of
- a.** contact.
 - b.** polarization.
 - c.** conduction.
 - d.** charge transfer.
- 9.** Electrons in conducting materials are loosely held by atoms in contrast to electrons in insulators, which tend to be tightly held. How does this fact explain the difference between electrical conductors and electrical insulators?
- _____
- _____
- _____
- 10.** A grounded conductor may be charged by the process of _____ when a charged object is brought near the conductor.
- _____