Chapter 17 Test Review

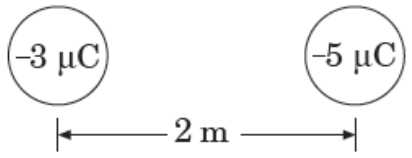
1. What keeps the protons in an atomic nucleus from flying away from one another?
A They are attracted to one another by electrical forces.
B Neutrons bond with protons, holding the protons together.
C The attraction between electrons and protons holds the nucleus together.
D The strong nuclear force is stronger than the repulsive electrical force at short distances.

2. By how much does the electric force between two charges change when the distance between them is doubled?
A 4
B 2
C 1/2
D 1/4

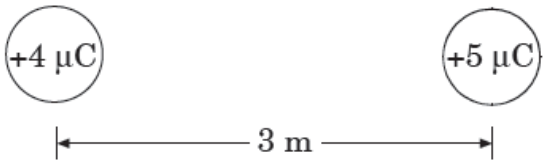
3. Two charged particles of $+5.0 \times 10^{-15}$ C and $+4.7 \times 10^{-15}$ C exert a repulsive force on each other of 350 N. What is the distance between the two charges?
A 6.0×10^{-22} m
B 2.5×10^{-11} m
C 8.8×10^{-5} m
D 4.1×10^{10} m

4. Which set of charges will experience the ***greatest*** magnitude of electrostatic force between them?

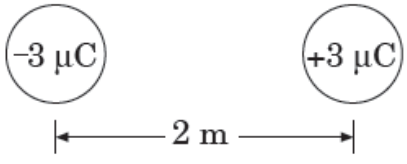
A



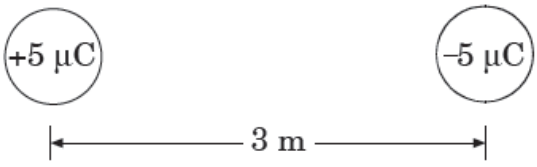
C



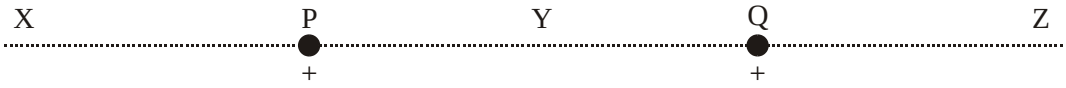
B



D

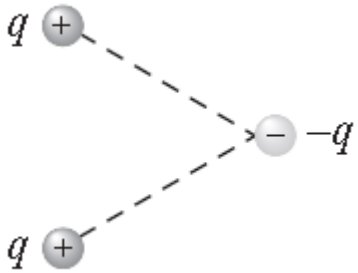


5. Two **positive** point charges P and Q are held a certain distance apart.



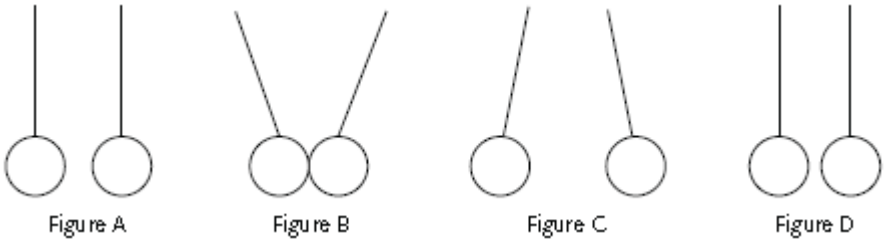
At which point(s) could the electric field strength, due to the charges, be zero?
A X only
B Y only
C Z only
D X and Z only

6. In which direction will the electric force from the two equal positive charges move the negative charge shown below?



A to the left
B to the right
C upward
D downward

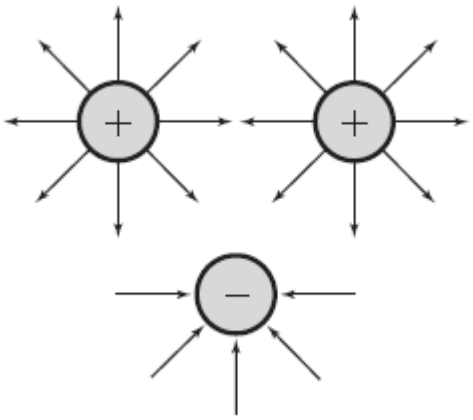
7. Two balls are suspended by parallel strings so that they hang at the same level as shown below in figures below. Which figure shows balls that have the same charge?



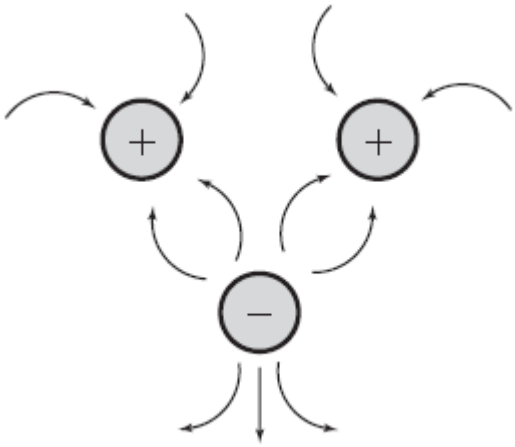
A figure A
B figure B
C figure C
D figure D

8. Which of the following shows the electric field lines for two protons and one electron?

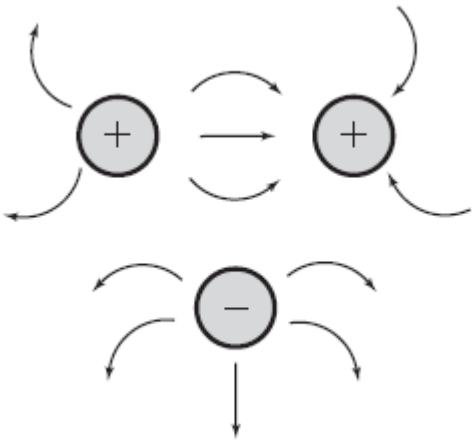
A



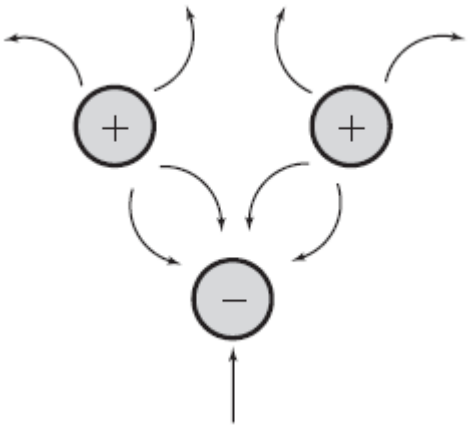
B



C



D



9. When an insulator is in the presence of a charged object, its molecules can experience a change in their centers of charge resulting in of the insulator.
A conduction
B polarization
C electrostatic equilibrium
D induction

10. A negatively charged object is brought close to the surface of a conductor, whose opposite side is then grounded. What kind of charge is left on the conductor's surface?
A positive
B negative
C neutral
D both positive and negative

11. 1 C = _____ electrons

12. 1 Elementary particle = _____ C

13. In an electroscope, why it is that when a charged rod touching the metal knob of the electroscope causes the metal leaves to separate?

14. A glass rod is rubbed by a silk cloth. If the rod loses an electron, the *glass rod* becomes _____ charged. The *silk* becomes _____ charged.