Electrostatics: Electrostatic Force and Field (Chapter 18)

1. Find the force experienced by a 6.0µC point charge and a -4.0µC point charge separated by 1.6x10-2m.

2. A proton and an electron experience a 2.2x10-11N attractive force. What is the distance between the charges?

3. Three charges are arranged as shown below. The rectangle measures 3.00cm by 4.00cm.

+2.50µC P

+3.00µC -2.00µC

a. Find the force experienced by the 2.50µC charge

b. Find the force experienced by the -2.00µC charge

c. Find the force experienced by the +3.00µC charge

4. Three charges are placed on a straight line. Charge 1 is 4.00 µC, Charge 2 is -3.00 µC and is 2.00cm to the right of charge 1. Charge 3 is 6.00µC and is 5.00cm to the right of **charge 1**. Find the electrostatic force on Q2.

5. A +2.0nC charge is placed at a point where it feels an electrostatic force of 4.0x10-6N left. What is the electric field at that point?

6. A -2.0nC charge is placed at a point where it feels an electrostatic force of 4.0x10-6N left. What is the electric field at that point?

7. Find the electric field 1.00mm to the left of a proton.

8. Find the electric field 1.00mm to the left of an electron.

9. Find the electric field midway between two protons separated by 2.00mm.

10. Find the electric field midway between two electrons separated by 2.00mm.

11. Find the electric field midway between a proton and an electron separated by 2.00mm.

12.

12.0nC

A

3.00cm

4.0nC

B

6.00cm

Find the electric field at point A and point B.

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