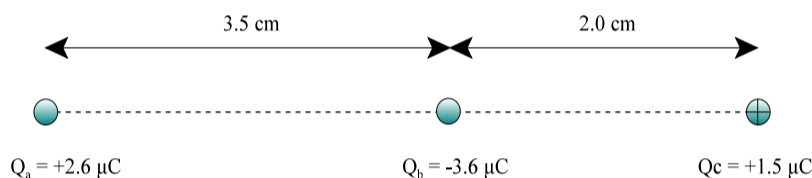


Physics 3204 Electrostatics Review Sheet

1. A polystyrene rod rubbed with a plastic sheet becomes positively charged. Name and describe the motion of atomic particles that result in the positive charge on the rod.
2. A large negatively charged thunder cloud passes over an open field. What happens to the charge distribution in the open field?
3. A friend of yours who has not studied physics says that lightning rods attract lightning. Use your understanding of charge distribution and discharging to describe what really happens. (p533)
4. Draw the electric field in the region surrounding(page 548-549):
 - a) A negatively charged egg shaped object
 - b) two positively charged spheres
5. Two charge spheres 10.0 cm apart attract each other with a force of 3.00 N. What force results from each of the following changes, considered separately?
 - a) Both charges are doubled and the distance remains the same
 - b) An uncharged, identical sphere is touched to one of the spheres, and then taken away.
 - c) The separation is increased to 30.0 cm.

6. Calculate the net force on:

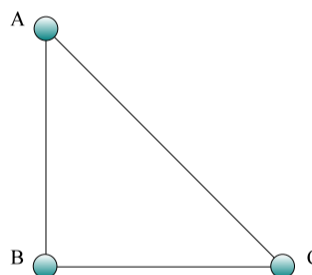
- a) Charge A
- b) Charge B
- c) Charge C



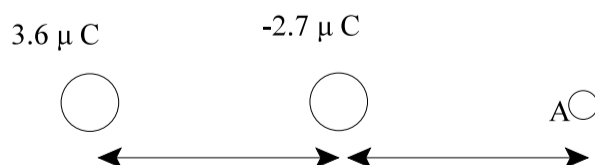
7. Calculate the net force on:
Charge A, B, and C

Given that

- | | |
|-------------------------|-------------------------|
| $Q_a = -1.7 \text{ nC}$ | $AB = 4.3 \text{ cm}$ |
| $Q_b = +1.2 \text{ nC}$ | $BC = 6.8 \text{ cm}$ |
| $Q_c = -1.3 \text{ nC}$ | ABC is a right triangle |



8. A small foam pith ball carrying a charge of $1.5 \times 10^{-6} \text{ C}$ experiences a force of 3.0 N to the left. What is the electric field strength at this point?
9. Two point charges , $q_1 = 3.6 \mu\text{C}$ and $q_2 = -2.7 \mu\text{C}$ are arranged as shown below:



- A) Find the net electric field strength at Point A due to the combined electric fields of both charges
- B) What force is exerted on a charge of 4.5×10^{-6} placed at point A.

10. The work done on a test charge of magnitude $q = 1.0 \times 10^{-6} \text{ C}$ in moving it from a distance Δd against an electric field is $2.5 \times 10^{-5} \text{ J}$
- A) What is the change in the electric potential energy of the charge for this displacement?
- B) What is the potential difference between these two positions
11. What is the electric potential 4.0 cm from a point charge of $+3.20 \times 10^{-19} \text{ C}$
12. How much work must be done to increase the potential of a charge q (2.5×10^{-7}) by 100 V.