Gr. 11 Review of Electricity and Magnetism

Electricity

* Things become charged due to a deficit of electrons or an increase of electrons.
  + This can happen through friction
  + Electrons can be transferred via conduction (contact)
  + Objects can be charged through **induction**
* Like charges repel
* Opposite charges attract
* Around a charged object, there exists an electric field. An electric field will impart a force on any charged object.

Formula Time

* When drawing electric fields, the arrows always go in the direction that a positive charge would go.
* The big difference between gr. 11 and gr.12 is that we answer questions in 2D!

Ex1: What is the electric force between a 30. C charge and a -15C given that they are 5.5cm apart.

Ex2: What electrical field is created at a point 25cm North of a 5.2µC charge?

Ex 3: Draw the electric field lines for the following configurations.

A) B)

Ex 4: On a straight line, there is a 4.5C, a test charge, and 6.2C. How far from the 4.5 C should the test charge be placed given that the distance between the 4.5C and 6.2C is 2.0m and the test charge is NOT MOVING?

Ex 5: What is the net force on the 3.5µC charge given that it is in the following configuration with two other charges.

Ex 6: What force does an electron experience north of a negative charge that has an electric field of 42006N/C?

qelectron: - 1.6 x 10 -19C

qproton: 1.6 x 10-19C

me = 9.11 x10 -31kg

mp = 1.67 x 10-27Kg