Student Number:

## **Physics Prereading - Electrostatics**

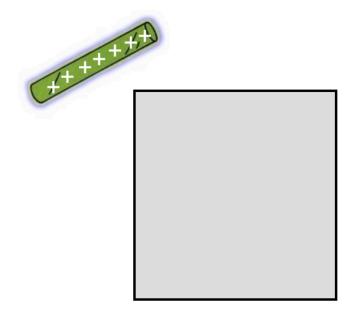
## The following question are based on content from chapter 25.

- 1) A glass rod is rubbed with silk and a plastic rod is rubbed with wool. An object hangs from a thread.
  - a) If the plastic rod repels the object, can you predict what will happen to the glass rod? Explain.

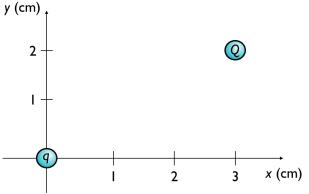
b) If the plastic rod attracts the object, can you predict what will happen to the glass rod? Explain.

2) Consider two identical metal spheres, one with a charge +Q and another with a charge +q. What is the charge on each sphere if the spheres are touched together? Explain.

3) How would your answer from 2) change if the spheres were made of plastic instead of metal? Explain. 4) A positively charge inanimate rod is brought near a metal box. In the metal box draw a possible configuration of both positive and negative charges.



5) Two charges with charge q = 2 nC and Q = -1 nC are in a configuration as shown to the right. What is the force that charge q exerts on charge Q? Write your answer in terms of unit vectors. What is the force that Q exerts on q?



- 6) A constant electric field points to the right. Describe the effects of this field on:
  - a) A stationary electron:
  - b) A stationary proton:
    +
  - c) An electron  $45^{\circ}$  up and to the right.



d) An electric dipole:

