**Phys100 Assignment Cover Sheet**

**First Name:_____** **Last Name:_____** **Mark:_____**

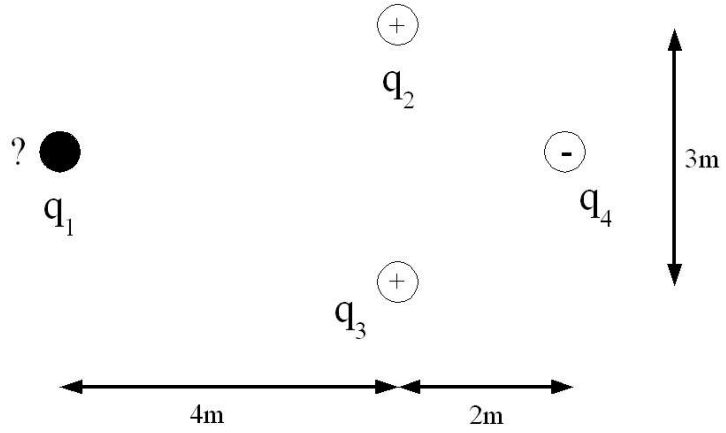
**Student ID:_____** **Computing ID: _____** **Date:_____**

# Phys 100 Assignment #10

**(last assignment of the year)**

Due Wednesday April 4, 2007, 9AM.

Four charges are aligned as follows:




$q_1 = ?$ $q_3 = +3\times10^{-6}$ C

$q_2 = +3\times10^{-6}$ C $q_4 = -2\times10^{-6}$ C

What is the charge (**sign and magnitude**) of $\mathbf{q_1}$ in order for the NET force (due to $\mathbf{q_1}$, $\mathbf{q_2}$ and $\mathbf{q_3}$) on charge $\mathbf{q_4}$ to be ZERO?

(Hint: DRAW free body diagram of the forces acting on $\mathbf{q_4}$ and use vector components in order to get a NET force of ZERO on $\mathbf{q_4}$. This is great practice for your vector component method. )