**Question**: Connecting Electrostatics to Dynamics/Kinematics

Work in groups of 3-4 to answer these 4 questions!

(Hint: do you remember your equations from Dynamics/Kinematics?)

An electron travelling at 2.3 x 105 m/s with a direction as shown in the drawing enters a uniform 280 N/C electric field.

(a) Analyzing the electric lines of force, what is the direction of the force acting on the particle?

(b) What is the magnitude of the force?

(c) What is the acceleration acting on the electron?

(d) If the electron travels a distance of 3.0 mm in the field, what is the distance it will be deflected from its original path?

***Superposition Principle:***

When we have more than two charges in proximity, the forces between them get more complicated. But, please to relax, even though things seem complicated, they actually ain’t and it is fairly simple to work things out. The forces, being vectors, just have to be added up. We call this the ***superposition principle***.

Superposition Principle  The resultant force on a charge is the vector sum of the forces exerted on it by other charges.

***Let’s look at a system of three charges.***

1. ***The charges are arranged as shown in the drawing.*** q1 ***is 3.00 m from*** q2***.*** q2 ***is 4.00 m from the*** q3***. (We immediately spot this as one of those “345” triangle deals, so we know that*** q1 ***is 5.00 m from*** q3***). What is the net force acting on*** q3***?***





***What is the net force acting on*** q3***? Solve the following on a whiteboard, check your answer with the key and if correct record the answer from your whiteboard onto this sheet!***