

A sphere with positive charge and mass M moves at constant speed in a region with a uniform electric field \mathbf{E} (see figure). For the following questions, indicate your choice by circling the corresponding letter, \mathbf{a} to \mathbf{d} .

- Q1) The force(s) on the sphere is (are)...
 - (a) the force due to the electric field only.
 - (b) the force due to the electric field and an equal and opposing force.
 - (c) There are no forces on the sphere, no other objects are present.
 - (d) None of the above.
- Q2) If suddenly the magnitude of the E field is doubled, then the sphere...
 - (a) will speed up continuously.
 - (b) will still move at the original constant speed.
 - (c) will speed up till it reaches twice the original constant speed and then move at that speed.
 - (d) None of the above.
- Q3) If the charge on the sphere is doubled, then the sphere...
 - (a) will speed up continuously.
 - (b) will speed up till it reaches twice the original constant speed and then move at that speed.
 - (c) will still move at the original constant speed.
 - (d) None of the above.
- Q4) If the electric field is suddenly turned off, then the sphere...
 - (a) will slow to a stop.
 - (b) will still move at the original constant speed.
 - (c) will stop immediately.
 - (d) None of above

Q5) If an identical sphere moves at twice the constant speed of the original sphere. The force(s) on this second sphere is (are)...

- (a) the force due to the electric field only.
- (b) the force due to the electric field and an equal and opposing force.
- (c) There are no forces on the sphere, no other objects are present.
- (d) None of the above.