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Assignment

1) Newton's second law tells us that $mg = ma$

$$\text{so } a = g$$

In the case of charges in a uniform electric field. If a charge is thrown into a uniform electric field, it would also follow a parabolic path. Where the parabola comes from the constant force experienced by the charge in the electric field. Then where and when the electron would land by doing a projectile motion analysis. The acceleration would be zero in one direction and constant in the other. Where

$$qE = ma$$

$$a = \frac{qE}{m}$$

a is acceleration

q is point charge

m is mass

E is the magnitude of the at any point p

... of the at any point p

2) The magnitude of the electric field is simply defined as the force per charge on the test charge. Its unit is Newton per Coulomb.

$$\text{Electric field} = \frac{\text{Force}}{\text{Charge}}$$

Magnetic fields exert forces on moving charges. The direction of the magnetic force on a moving charge is perpendicular to the plane formed by v and B and follows right hand rule. The magnitude of the force is proportional to q, v, B and the sine of the angle between v and B .

$$F = qvB \sin \theta$$

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Electric current is the rate of flow of positive charge. Current can be caused by the flow of electrons, ions or other charged particles. Electrons are negatively charged, so the direction electrons flow is the opposite direction to current. Where:

$$\text{Electric charge} = \text{electric current} \times \text{time}$$

$$Q = It$$