Basic Special Relativity Equations: A Practice

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***Abstract*—Galilean Relativity as applied to Maxwell's equations does not work. Presented is a simple derivation of Lorentz Equations that essentially defined Special Relativity developed by Einstien and Poincare'. In addition, I also did this to practice my LaTeX.**

I. Galillean Relativity

The following are the equations commonly known as Galilean Relativity:

$$x' = x - vt \tag{1}$$
$$y' = y \tag{2}$$
$$z' = z \tag{3}$$
$$t' = t \tag{4}$$

A. Plugging Galillean Relativity into Maxwell's Equations

1) Maxwell's Equations: From Maxwell, it was mathematically shown that light is an electromagnetic wave:

$$\nabla^2 E = \mu_0 \epsilon_0 \ddot{E} \tag{5}$$
$$\nabla^2 B = \mu_0 \epsilon_0 \ddot{B} \tag{6}$$

This can be written in the "Generic Form" of the Wave Equation:

$$\nabla^2 \varphi = \frac{1}{c^2} \frac{\partial^2 \varphi}{\partial t^2} \tag{7}$$

2) Putting Galillean Relativity Equations in Maxwell's equations: