The Lorentz transformations

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Introduction

Even before Einstein dveleoped the special theory of relativity, Hendrick Lorentz had come up with a set of equations that would replace the familiar Galilean transformations:

$$
\begin{aligned}
x' &= \gamma(x - vt) \\
y' &= y \\
z' &= z \\
t' &= \gamma(t - \frac{xv}{c^2})
\end{aligned}
$$