Hello World!

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1 Getting Started

Hello World! Today I am learning LATEX. LATEXis a great program for writing math. I can write in line math such as $a^2 + b^2 = c^2$. I can also give equations their own space:

$$\gamma^2 + \theta^2 = \omega^2 \tag{1}$$

"Maxwell's equations" are named for James Clark Maxwell and are as follow:

$$
\begin{aligned}
\vec{\nabla} \cdot E &= \frac{\rho}{\epsilon_0} & \text{Gauss's Law} && (2) \\
\vec{\nabla} \cdot \vec{B} &= 0 & \text{Gauss's Law for Magnetism} && (3) \\
\vec{\nabla} \times \vec{E} &= -\frac{\partial \vec{B}}{\partial t} & \text{Faraday's Law of Induction} && (4) \\
\vec{\nabla} \times \vec{E} &= \mu_0 \left(\epsilon_0 \frac{\partial \vec{E}}{\partial t} + \vec{J} \right) & \text{Ampere's Circuital Law} && (5)
\end{aligned}
$$

Equations 2, 3, 4, and 5 are some of the most important in Physics.

2 What about Matrix Equations?

$$
\begin{pmatrix}
a_{11} & a_{12} & \cdots & a_{1n} \\
a_{21} & a_{22} & \cdots & a_{2n} \\
\vdots & \vdots & \ddots & \vdots \\
a_{n1} & a_{n2} & \cdots & a_{nn}
\end{pmatrix}
\begin{bmatrix}
v_1 \\ v_2 \\ \vdots \\ v_n
\end{bmatrix}
=
\begin{matrix}
\omega_1 \\ \omega_2 \\ \vdots \\ \omega_n
\end{matrix}
$$