Some maths

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Experimentations in LaTeX

I hereby decree the following:

$$1 + 2 = 3$$

$$1 = 3 - 2$$

$$\begin{aligned} 1 + 2 &= 3 \\ 1 &= 3 - 2 \end{aligned}$$

$$\begin{aligned} f(x) &= x^2 \\ g(x) &= \frac{1}{x} \\ F(x) &= \int_b^a \frac{1}{3} x^3 \end{aligned}$$

$$\frac{1}{\sqrt{x}}$$

$$\begin{matrix} 1 & 0 \\ 0 & 1 \end{matrix}$$

$$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$\left(\frac{1}{\sqrt{x}} \right)$$

$$\lambda \Lambda \alpha \epsilon \delta \Delta$$

Let

$$
\begin{aligned}
E &= \frac{\sigma}{\epsilon} \\
\sigma &= \frac{F}{A} \\
\epsilon &= \frac{x}{l_0} \\
\Rightarrow E &= \frac{Fl_0}{Ax} \ in \ Nm^{-2}
\end{aligned}
$$

Given that

$$
\begin{aligned}
n &= 2k + 1 \\
M &= n^2 \\
\Rightarrow M &= (2k+1)^2 = 4k^2 + 4k + 1 \\
\Rightarrow M &= 4(k^2 + k) + 1 \\
\Rightarrow M &= 4q + 1 : q \in \mathbb{Z} \\
\Rightarrow M &= 1 \mod 4
\end{aligned}
$$

Cardinality something something pope $\aleph_0$

$$A_{circle} = \pi r^2$$

$$\vec{BC} = \vec{OC} - \vec{OB}$$

$$\int_a^b x^2 dx$$

$$\sum_{n=1}^{\infty} 2^{-n} = 1$$

$$\prod_{i=a}^{b} f(i)$$

$$\lim_{x \to \infty} f(x)$$

Integral $\int_a^b x^2 dx$ inside text

Improved integral $\int\limits_a^b x^2 dx$ inside text

Sum $\sum_{n=1}^{\infty} 2^{-n} = 1$ inside text

Improved sum $\sum_{n=1}^{\infty} 2^{-n} = 1$ inside text

$$\int_0^1 \left(\cos(kx) + \frac{1}{\sqrt{x}} \right) dx = x^{2^x} \tag{1}$$