Hello, This my first LaTeX document!
The rectangle is of length $(x + 2)$ and $(x + 3)$. The Equation

$$A(x) = x^2 + 4x + 3$$

gives the area of rectangle

Common mathmatical Notation

SuperScript

$$2x^3$$

$$2x^{34}$$

$$2x^{2x+4}$$

$$2x^{3x^{54}}$$

SubScripts

$$x_1$$

$$x_{12}$$

$$x_{1_{2_{3_4}}}$$

$$a_1, a_2, \ldots a_{100}$$

Greek Letters

$$\pi$$

$$\Pi$$

$$\alpha$$

$$\aleph$$

$$A = \pi r^2$$

Trignometry Function

$$y = \sin x$$

$$y = \cos x$$

$$y = \csc \theta$$

$$y = \sin^{-1} x$$

$$y = \arcsin x$$

Log Function

$$y = \log x$$

$$y = \log_5 x$$

$$y = \ln x$$

Roots

$$\sqrt{2}$$
$$\sqrt[3]{2}$$
$$\sqrt{x^2+y^2}$$
$$\sqrt{1+\sqrt{x}}$$

Fraction

About $\frac{2}{3}$ of glass is full.

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$$\frac{\sqrt{x+1}}{\sqrt{x+2}}$$
$$\frac{1}{1+\frac{1}{4}}$$

Brackets

States that $a(b+c) = ab + ac$, for all $a, b, c \in \mathbb{R}$

Square a , $[a]$

Curly Bracket A , $\{working\}$

Doller Sign \$

$$2\left(\frac{2}{1^{2-1}}\right)$$
$$2\left[\frac{2}{1^{2-1}}\right]$$
$$2\left\{\frac{2}{1^{2-1}}\right\}$$
$$2\left\langle\frac{2}{1^{2-1}}\right\rangle$$

$$2 \left| \frac{2}{1^{2-1}} \right|$$

$$\left. \frac{dy}{dx} \right|_{x=1}$$

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