Hello! This is my first LaTeX document.
A rectangle has side lengths of $(x+1)$ and $(x+3)$ The equation

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

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

superscripts

$$2x^{34}$$

$$2x^{3x^4+5}$$

Subscripts

$$x_1$$

$$x_{12}$$

$$x_{1_2}$$

$$a_0, a_1, a_2, \ldots, a_{100}$$

$$a_0, a_1, a_2, \cdots, a_{100}$$

Greek letters

$$\pi$$

$$\Pi$$

$$\alpha$$

$$A = \pi r^2$$

Trig functions

$$y = sinx$$

$$y = \sin x$$

$$y = \cos x$$

$$y = \csc \theta$$

$$y = \csc \Theta$$

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

$$y = \arcsin x$$

Log functions

$$y = \log x$$

$$y = \log_{54} x$$

$$y = \ln x$$

Roots

$$\sqrt{2}$$

$$\sqrt[3]{2}$$

$$\sqrt{x^2 + y^2}$$

$$\sqrt{1 + \sqrt{x}}$$

Fractions

$$\frac{2}{3}$$

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

About $\dfrac{2}{3}$ of the glass is full

About $\dfrac{2}{3}$ of the glass is full

About $\dfrac{2}{3}$ of the glass is full

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

$$\frac{1}{1 + \frac{1}{x}}$$