superscripts

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

subscripts

$$x_{1_2}$$

$$a_0, a_1, \cdots a_n$$

$$a_0, a_1, \ldots a_n$$

Greek letters

$$\pi$$

$$\alpha$$

Trig functions

$$y = \sin x$$

$$y = \arccos x$$

Log functions

$$y = \log x$$

$$y = \log_5 x$$

$$y = \ln x$$

Roots

$$\sqrt{100}$$

$$\sqrt[3]{100}$$

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

Fractions

$$\frac{3}{7}$$

About $\dfrac{3}{7}$ is for tax.About $\frac{3}{7}$ is for tax.

About $\frac{3}{7}$ is for tax.(Vertial space)

$$\frac{\sqrt{x+1}}{\sqrt{x+3}}$$

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

Brackets
The set A is defined as $\{1, 2, 3\}$

To make brackets automatically fit the size of the elements inside, use \left and \right

$$4(\frac{1}{x+\frac{2}{3}})$$

$$4\left(\frac{1}{x+\frac{2}{3}}\right)$$

$$4\left\langle\frac{1}{x+\frac{2}{3}}\right\rangle$$

But \left and \right must be in pairs, to hide one of them, use \(left/right).

$$\frac{dy}{dx}\bigg|_{x=1}$$