superscripts

$$2x^3$$

$$2x^{34}$$

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

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

subscripts

$$x_1$$

$$x_{12}$$

$$x_{(x+1)}$$

$$x_{1_2}$$

$$x_{1_{2_3}}$$

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

Greek letters

$$\pi$$

$$\Pi$$

$$\alpha$$

$$A = \pi r^2$$

Trig functions

$$y = \sin x$$

$$y = \cos x$$

$$y = \tan x$$

$$y = \csc \theta$$

$$x = \sin \theta$$

$$y = \sin^{-1} 45^\circ$$

$$y = \arcsin 45^\circ$$

Log function

$$y = \log x$$

$$y = \log_5 x$$

$$y = \ln x$$

Roots

$$\sqrt{2}$$

$$\sqrt[3]{27}$$

$$\sqrt{x^5}$$

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

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

Fractions

$$\frac{5}{2}$$

$$\frac{divisor}{divider}$$

$$\frac{5x^{34}}{6x^{36}}$$

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

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

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