superscripts $2x^3$
superscripts with display mode

$$x^9$$

$$4x^5$$

$$2x^34$$

$$2x^{34}$$

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

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

$$3x^{2x^{11}+1}$$

subscripts

$$x_1$$

$$x_12$$

$$x_{12}$$

$$x_{1_2}$$

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

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

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

Greek Letters

$$\pi$$

$$\Pi$$

$$\theta$$

$$\Theta$$

$$\alpha$$

$$A = \pi r^2$$

Trig functions

$$y = \sin x$$

$$y = \cos x$$

$$y = \csc \theta$$

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

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

$$y = \arcsin x$$

Log functions

$$y = \log x$$

$$y = \log_5 x$$

$$y = \ln x$$

Roots

$$\sqrt{2}$$

$$\sqrt[3]{5}$$

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

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

Fractions

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

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

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

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