

superscripts

$$2x^3$$

$$2x^{34}$$

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

subscripts

$$x_1$$

$$x_{12}$$

$$x_{1_2}$$

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

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

Greek letters

$$\pi$$

$$\Pi$$

$$\alpha$$

$$A = \pi r^2$$

$$y = \sin x$$

$$y = \cos x$$

$$y = \csc \theta$$

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

$$y = \arcsin x$$

Log functions

$$y = \log x$$

$$y = \log_5 x$$

$$y = \ln x$$

Roots

$$\sqrt{2}$$

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

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

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

Fractions

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

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

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

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

1 Circle Question

$$c = 2\pi r$$

Circle A has radius 1.

Circle B has radius 3.

\therefore

$$c_A = 2\pi r_A$$

$$c_B = 2\pi r_B$$

Where $3r_A = r_B$

Hence

$$c_B = 6\pi r_A$$

$$c_B = 3c_A$$

$$c_B + \frac{c_A}{2} = 6\pi r_A + \pi r_A$$

$$c_B + \frac{c_A}{2} = 7\pi r_A$$

Let $r_C = r_A + r_B = 4r_A$

$$c_C = 2\pi r_C = 8\pi r_A$$

$$\frac{c_C}{c_A} = \frac{8\pi r_A}{2\pi r_A} = 4$$

\therefore there are 4 revolutions in total