Contents

My Practice LaTeX Document

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This is my first LaTeX document.
Suppose I want to build a rectangle with sides $(x + 1)$ and $(x + 3)$, then the area of rectangle is given by: $A = x^2 + 4x + 3$

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

superscripts: $2x^3$

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$$2x^3$$

$$2x^34$$

$$2x^{34}$$

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

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

subscripts:

$$x_1$$

$$x_{12}$$

$$x_{123}$$

Greek Letters:

$$\pi$$

$$\alpha$$

$$A = \pi r^2$$

Trig:

$$y = \sin x$$

$$y = \cos x$$

$$y = \tan x$$

Log:

$$\log x$$

$$\ln x$$

$$\log_5 x$$

square roots:

$$\sqrt{2}$$

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

$$\sqrt[3]{x^2+y^2}$$

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

fractions:
About 2/3 of the glass is full.
About 2/3 of the glass is full. Nothing changes here.
About $\frac{2}{3}$ of the glass is full.
About $\dfrac{2}{3}$ of the glass is full.

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

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

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

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

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

Brackets, Tabels and Arrays

$$(x+1)$$

$$3[2+(x+1)]$$

a, b, c here we cannot see the breacket

$$\{a, b, c\}$$

$$\$12.55$$

$$3(\frac{2}{5})$$

$$3\left(\frac{2}{5}\right)$$

$$3\left[\frac{2}{5}\right]$$

$$3$$

$$3\left\{\frac{2}{5}\right\}$$

$$|x|$$

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

$$\left|\frac{x}{x+1}\right|$$

$$\left\{x^2\right\}$$

$$\left\{x^2$$

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

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

Table:

x	1	2	3	4	5
$f(x)$	10	11	12	13	14

x	1	2	3	4	5
$f(x)$	10	11	12	13	14

Array: eqnarray automatically takes us in to math mode

$$\begin{aligned} 5x^2 - 9 &= x + 3 && (1)\\ 4x^2 &= 12 && (2)\\ x^2 &= 3 && (3)\\ x &\approx \pm 1.732 && (4) \end{aligned}$$

No equation numbers:

$$\begin{aligned} 5x^2 - 9 &= x + 3\\ 4x^2 &= 12\\ x^2 &= 3\\ x &\approx \pm 1.732 \end{aligned}$$

Lists:

1. calculator
2. ruler

3. notebook
    (a) assessments
        i. tests
        ii. quizes
    (b) home work
    (c) notes
4. graph paper
5. paper

- calculator
- ruler
- notebook
    - assessments
        * tests
        * quizes
    - home work
    - notes
- graph paper
- paper

Commutative $a + b = b + a$

Associative $a + (b + c) = (a + b) + c$

Distributive $a(b + c) = ab + ac$

Text Formatting:
This will produce *italicized* text.
this will produce **boldfaced** text.
This will produce SMALL CAPS text.
this will produce `type writer` text.
Please excuse my dear aunt Sally
Please excuse my dear aunt Sally
please excuse me dear aunt Sally
please excuse me dear aunt Sally
please excuse me dear aunt Sally
please excuse me dear aunt Sally
please excuse me dear aunt Sally
Justification :

This is centered Text.

This is Left Text.

This is Right Text.

Sections and Sub Sections:

1 Linear Functions

1.1 Slope Interccept Form

The slope intercept form of the linear function is given by $y = ax + b$.

1.2 Standeard Form

1.3 Point Slope Form

2 Quadratic Functions

2.1 Vertex Form

2.2 Standard Form

2.3 Factored Form

Making sections and subsections help us to make the table of cotents easy. for this go to top before title and add ”
tableofcontents”.

The set of natural numbers is denoted by $\mathbb{N}$.

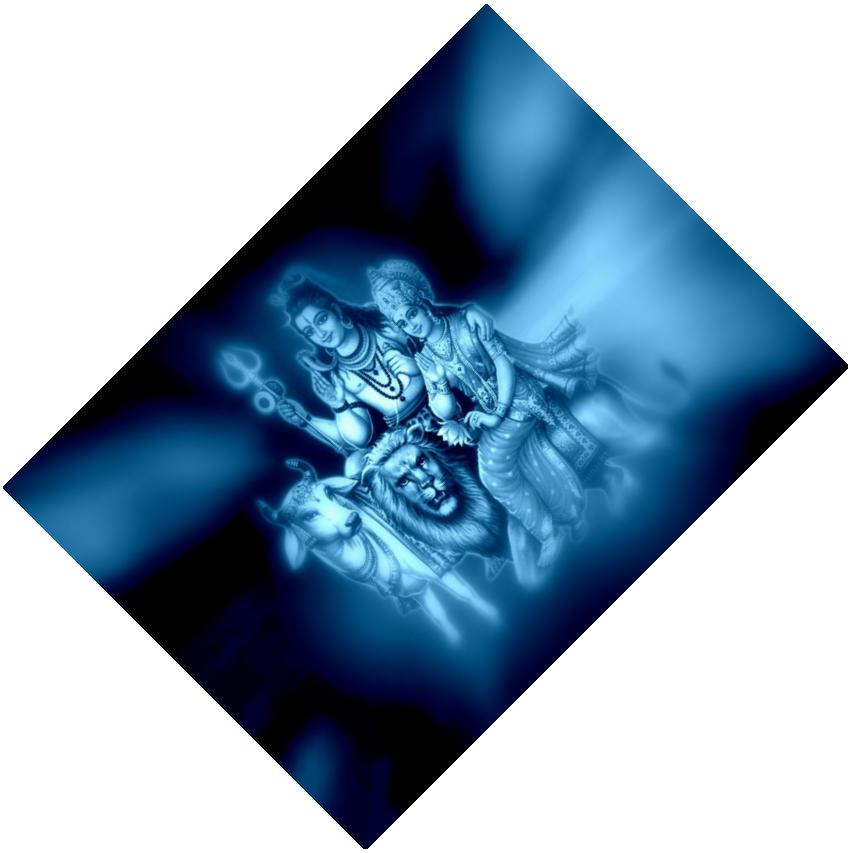
The set of Integers numbers is denoted by $\mathbb{Z}$.

The set of Real numbers is denoted by $\mathbb{R}$.

Here we use package amsfonts.

Macros: Macros are used to define our own LaTeX commands, particularly which needs to be typed multiple times.

Graph $y = \frac{x}{3x^2+x+1}$.



We can only use .jpg, .png, .gif and .pdf

Identify the assymptotes for the graph of $y = \frac{x}{3x^2+x+1}$.
Remember to include a scale and label your axis

Comment:
This is comment below
Calculus Notations:
the function $f(x) = (x-3)^2 + \frac{1}{2}$ has domain $\mathrm{D}_f : (-\infty, +\infty)$ and range $\mathrm{R}_f : \left[\frac{1}{2}, \infty\right)$.

Limit: $\lim_{x \to a}$

$$\lim_{x \to a^+} f(x)$$

$$\lim_{x \to a} \frac{f(x)-f(a)}{x-a} = f'(a)$$

$$\lim_{x \to a} \frac{f(x) - f(a)}{x - a} = f'(a)$$

Integral :

$$\int \sin x \, dx = -\cos x + C$$

$$\int_a^b$$

$$\int_a^b$$

$$\int_2 a^b$$

$$\int_{2a}^{b} x^2 \, dx = \left[\frac{x^3}{3}\right]_{2a}^{b} = \frac{b^3}{3} - \frac{(2a)^3}{3}$$

$$\sum_{n=1}^{\infty} ar^n = a + ar + ar^2 + ... + ar^n$$

$$\sum_{n=1}^{\infty} ar^n = a + ar + ar^2 + \cdots + ar^n$$

$$\int_a^b f(x) \, dx = \lim_{x \to \infty} \sum_{k=1}^{n} f(x_k) \cdot \delta x$$

$$\int_a^b f(x) \, dx = \lim_{x \to \infty} \sum_{k=1}^{n} f(x_k) \cdot \Delta x$$

Vectors:

$$\vec{V} = v_1 \vec{i} + v_2 \vec{j} = \langle v_1, v_2 \rangle$$