My First Latex Document

Rana Universe*

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Figure 1: Rana Universe logo in black circle

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Mathematical Indices

Below is the equation representing the sum of squares:

$$
\begin{aligned}
a^2 + b^2 &= c^2 \\
a + b &= c \\
x^{123} &= x + y + z^3 \\
y^{m+n} &= y^m \cdot y^n \\
x^{1/2} &= \text{Square Root of } x \\
y^{m/n} &= \text{nth root of } y^m \\
b^{\frac{m}{n}} &= \text{This is also nth root of } b^m. \\
b^{\frac{m}{n}} &= \text{This is also nth root of } b^m. \\
x^{-3x} &= \text{A incices of variable x with negative} \\
(a^m)^n &= \text{double power} \\
(a^m)^n &= \text{double power with left right} \\
(\frac{a}{b})^n &= \text{Here i use normal brackets} \\
\left(\frac{a}{b}\right)^n &= \text{Here i sued big brackets}
\end{aligned}
$$

$$
f(x) = \left(x + \frac{1}{x + \frac{1}{x + \cdots}} \right)^{100}
$$

$$f(x) = \left(x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x}}}}}}}}}}}}}}} \right)^{x+x^{-1}}$$

$$(\frac{5}{9})^3$$

$$\left(\frac{9}{987}\right)^{x^{1/2}}$$

This below is looks bad, i should not use text inside the math modes.

$$(a^m)^n$$

This upper is equals to the value of the below:

$$a^{mn}$$

$$(a^m)^n$$

This is equal toThis is equal toThis is equal toThis is equal toThis is equal to... This is equal toThis is equal toThis is equal toThis is equal toThis is equal to...

$$a^{mn}$$

$$(a^m)^n = a^{mn} \text{(Power of a power rule)}$$

$(a^m)^n$ = A Indices in Math

Still This is bad.

This is a very large paragraph, this is not good to use in math mode. I should use it at least as little as possible. Using text in math mode is not recommended, but this shows how to use **\begin** environment to show text there.

a^{mn} = This is also same

$$x^{y^z}$$

$$\left\{a^{b^c}\right\}$$

$$x_{i+1}^{\frac{n}{2}}$$

The Eular Equation is below using indices

$$e^{i\pi} + 1 = 0$$

$$F = \frac{Gm_1m_2}{r^2}$$

$$F = \frac{Gm_1m_2}{r^2}$$

$$(a^m)^n$$

$$F = \frac{Gm_1m_2}{r^2}$$

$$(a^m)^n$$

$$\left(a^{m^p}\right)^n$$

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

$$a^{\frac{m}{n^k}}$$

$$a^{\frac{m}{(n^k)}}$$

$$a^{\frac{m}{(n^k)}}$$

This below is bad to use as i can thnk

$$a^{\frac{m}{n^k}}$$

This here i need to use to make on new line. This is good to use maybe.

$$
\begin{aligned}
a + b &= c \\
a - b &= d \\
a \times b &= e \\
a + b \\
a - b \\
a \times b \\
a \cdot b \\
a \div b \\
\frac{a}{b} \\
a &= b \\
a &\neq b
\end{aligned}
$$

The below is a separate things a variable like things is this.

$$\frac{a+b}{c} \times d = x \neq y$$

Below the equations numbers will be shows per line even no equaions is this.

$$a + b \tag{1}$$
$$a - b \tag{2}$$
$$a \times b \tag{3}$$

To Get no numbering i will need align*.

$$
\begin{aligned}
a + b \\
a - b \\
a \times b
\end{aligned}
$$

Mathematical Fractions Symbols

$$\frac{3}{4}$$

$$\frac{3}{4}$$

$\frac{\frac{1}{2}}{\frac{3}{4}}$

Let's i will write a equation here, $\frac{1}{2} + \frac{2}{3}$ this is good now.

$$\frac{1}{2 + \frac{1}{3 + \frac{1}{4}}}$$

$$\frac{1}{2 + \frac{1}{3 + \frac{1}{4}}}$$

Let's we will write the physics formula, $\frac{\text{Distance}}{\text{Time}}$

Let's we will write the physics formula, $\frac{\text{Distance}}{\text{Time}}$

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

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

Inline: $\frac{a}{b}$
Display:

$$\frac{a}{b}$$

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

Let's we will write a good math equation with Normal **frac**, $9x + \frac{1}{x^2+3x+2}$
Let's we will write a good math equation with **tfrac**, $9x + \tfrac{1}{x^2+3x+2}$
Let's we will write a good math equation with **dfrac**, $9x + \dfrac{1}{x^2+3x+2}$
Let's we will write a good math equation with **cfrac**, $9x + \cfrac{1}{x^2+3x+2}$
In text: $f(x) = 1 + \dfrac{1}{x}$
Display:

$$f(x) = 1 + \frac{1}{x}$$

Continued using only frac part 1:

$$f(x) = 1 + \frac{1}{x + \frac{1}{x+\frac{1}{x}}}$$

Continued using only frac part 2:
This below is method 1

$$f(x) = x + \frac{1}{x + \frac{1}{x+\frac{1}{x+\frac{1}{x+\frac{1}{x}}}}}$$

This below is method 2, this is good to write easily quickly.

$$f(x) = x + \cfrac{1}{x + \cfrac{1}{x+\cfrac{1}{x+\cfrac{1}{x+\cfrac{1}{x+\cfrac{1}{x+\cfrac{1}{x+\cfrac{1}{x+\cfrac{1}{x+\cfrac{1}{x+\cfrac{1}{x+\cfrac{1}{x+\cfrac{1}{x}}}}}}}}}}}}$$

A Large fractions using the cfrac.
Below is making in bad ways maybe.

$$f(x) = x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x}}}}}}$$

Below is making in good ways maybe.
(It was write in good manner.)

$$f(x) = x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x}}}}}}}}$$

Continued using cfrac:

$$f(x) = 1 + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x}}}$$

Continued using dfrac:

$$f(x) = 1 + \dfrac{1}{x + \dfrac{1}{x + \dfrac{1}{x}}}$$

Continued using tfrac:

$$f(x) = 1 + \cfrac{1}{x + \cfrac{1}{x + \cfrac{1}{x}}}$$

The mass-energy equivalence is described by the famous equation

$$E = mc^2$$

discovered in 1905 by Albert Einstein. In natural units ($c = 1$), the formula expresses the identity

$$E = m \tag{4}$$

Let's Start Using the **'amsmath'**

Let's Start Using the **'amsmath'**

$$\begin{aligned} A &= \frac{\pi r^2}{2} \\ &= \frac{1}{2}\pi r^2 \end{aligned}$$

$$\begin{aligned} A &= \frac{\pi r^2}{2} \\ &= \frac{1}{2}\pi r^2 \end{aligned} \tag{5}$$

$$\begin{aligned} A &= \frac{\pi r^2}{2} \\ B + C + XYZ &= \frac{1}{2}\pi r^2 \end{aligned} \tag{6}$$

$$\begin{aligned} y = a + bc + def + xy + 98 + 89x + yt + ty^2 + \alpha + \beta + \gamma + m^2 + n^3 + \frac{a}{b} \\ + \sqrt{x^2 + y^2} + \delta + \epsilon + pq + rs + tu + vw + xyz + \alpha + \beta + \gamma + m^2 \\ + n^3 + \frac{a}{b} + \sqrt{x^2 + y^2} + \delta + \epsilon + pq + rs + tu + vw + xyz + \alpha + \beta + \gamma \\ + m^2 + n^3 + \frac{a}{b} + \sqrt{x^2 + y^2} + \delta + \epsilon + pq + rs + tu + vw + xyz + 1234 \end{aligned} \tag{7}$$

Let's Write some basic Pythagorean themorem.

$$a^2 + b^2 = c^2$$

Here 'c' represents the hypotenuse, and 'a' and 'b' represent the other two sides.

Below the equation number will start form my own wish like number 1 automatically.

$$a^2 + b^2 = c^2 \tag{1}$$

As shown in Equation 1, the sides of a right triangle follow this relation.

$$a^2 + b^2 = c^2 \tag{Rana 1}$$

Upper is a another example of using numbering by myself manually.

As shown in Equation **Rana 1**, which numbering was added manually is now working.

Let's Use some more type of equatoins numbering.

$$a + b = c \tag{000}$$

$$a^3 + b^3 = c^3 \tag{2}$$

This below 2 manually numbering is not good.

$$a + b = c \quad \ldots (1)$$

$$a + b = c \quad \ldots (1)$$

The well known Pythagorean theorem $x^2 + y^2 = z^2$ was proved to be invalid for other exponents. Meaning the next equation has no integer solutions:

$$x^n + y^n = z^n$$

Here is a famous quote:

> In physics, the mass-energy equivalence is stated by the equation $E = mc^2$, discovered in 1905 by Albert Einstein.

And now back to the main text.
Standard LaTeX practice is to write inline math by enclosing it between `\(...\)`:

> In physics, the mass-energy equivalence is stated by the equation $E = mc^2$, discovered in 1905 by Albert Einstein.

Instead if writing (enclosing) inline math between `\(...\)` you can use `$...$` to achieve the same result:

> In physics, the mass-energy equivalence is stated by the equation $E = mc^2$, discovered in 1905 by Albert Einstein.

Or, you can use `\begin{math}...\end{math}`:

> In physics, the mass-energy equivalence is stated by the equation $E = mc^2$, discovered in 1905 by Albert Einstein.

The equation $a + b = c$ is simple.

$$a^2 + b^2 = c^2$$

$$a + b = c \tag{3}$$

$$a^2 + b^2 = c^2 \tag{4}$$

$$a^3 + b^3 = c^3 \tag{5}$$

$$a^4 + b^4 = c^4 \tag{6}$$

$a + b, \quad a - b, \quad a \times b, \quad a \div b$

$$a + b, \quad a - b, \quad a \times b, \quad a \div b$$

$$a + b, \quad a - b, \quad a \times b, \quad a \div b$$

I love this Upper Examples.

Hello, **Rana!**
Hello, **Universe!**
Hello, **RanaUniverse!**

I am Rana Universe...**(1)**
I am Rana Universe...**(2)**
I am Rana Universe...**(3)**
I am Rana Universe...**(4)**
I am Rana Universe...**(5)**
I am Rana Universe...**(6)**
I am Rana Universe...**(7)**
I am Rana Universe...**(8)**
I am Rana Universe...**(9)**

1. I am Rana Universe...
    1. I am Rana Universe...
2. I am Rana Universe...
    2. I am Rana Universe...
3. I am Rana Universe...
    3. I am Rana Universe...
4. I am Rana Universe...
    4. I am Rana Universe...
5. I am Rana Universe...
    5. I am Rana Universe...
6. I am Rana Universe...
    6. I am Rana Universe...
7. I am Rana Universe...
    7. I am Rana Universe...
8. I am Rana Universe...
    8. I am Rana Universe...
9. I am Rana Universe...
    9. I am Rana Universe...

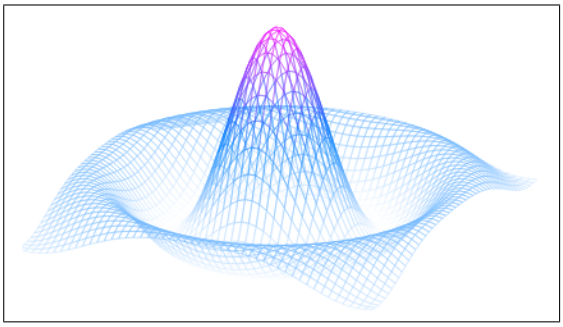

Figure 2: **A nice plot.**

As you can see in **Figure 2**, the function grows near the origin. This example is on page 16.

As you can see in ***Figure 2***, the function grows near the origin. This example is on page 16.

Figure 3: **Linux Logo**

Now in *Figure 3*, you can see the famous Linux logo. This is shown on page 16.

I am Rana Universe...
I am Rana Universe...
I am Rana Universe...
I am Rana Universe...
I am Rana Universe...
I am Rana Universe...
I am Rana Universe...
I am Rana Universe...
I am Rana Universe...

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

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viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.