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# L<sup>A</sup>T<sub>E</sub>X Document Learning

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Hello, This my first L<sup>A</sup>T<sub>E</sub>X document!

The rectangle is of length  $(x + 2)$  and  $(x + 3)$ . The Equation

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

gives the area of rectangle

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## Common mathematical Notation

SuperScript

$$2x^3$$

$$2x^{34}$$

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

$$2x^{3x^{54}}$$

SubScripts

$$x_1$$

$$x_{12}$$

$$x_{1_{2_{3_4}}}$$

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

Greek Letters

$$\pi$$

$$\Pi$$

$$\alpha$$

$$\aleph$$

$$A = \pi r^2$$

Trigonometry Function

$$y = \sin x$$

$$y = \cos x$$

$$y = \csc \theta$$

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

$$y = \arcsin x$$

Log Function

$$y = \log x$$

$$y = \log_5 x$$

$$y = \ln x$$

Roots

$$\sqrt{2}$$

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

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

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

Fraction

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

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

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

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

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

Brackets

States that  $a(b+c) = ab+ac$ , for all  $a,b,c \in \mathbb{R}$

Square  $a$  ,  $[a]$

Curly Bracket  $A$  ,  $\{working\}$

Doller Sign \$

$$2\left(\frac{2}{1^{2-1}}\right)$$

$$2\left[\frac{2}{1^{2-1}}\right]$$

$$2\left\{\frac{2}{1^{2-1}}\right\}$$

$$2\left\langle\frac{2}{1^{2-1}}\right\rangle$$

$$2\left|\frac{2}{1^{2-1}}\right|$$

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

$$\left(\frac{1}{1+\left(\frac{1}{1+x}\right)}\right)$$

Tables

$x$	1	2	3	4	5
$f(x)$	10	11	12	14	15

$x$	1	2	3	4	5
$f(x)$	$\frac{1}{2}$	11	12	14	15

Table 1: these value  $f(x)$

Arrays

$$5x^2-9=x+3 \tag{1}$$

$$5x^2-9=x+3 \tag{2}$$

$$5x^2 - 9 = x + 3$$

$$5x^2 - 9 = x + 3$$

$$5x^2 - 9 = x + 3 \tag{3}$$

$$5x^2 - 9 = x + 3 \tag{4}$$

Lists

1. nishu
2. deepak
3. neelam
  - (a) gla
  - (b) bank
4. last

- A. nishu
- B. deepak
- C. neelam

nishu

deepak

neelam

- nishu
- deepak
- neelam
  - gla
  - bank
- last

#### Text and Document Formatting

this is a *test*  
this is a **test**  
this is a TEST  
this is a **test**  
please visit google

i am nishant yadav  
i am nishant yadav  
i am nishant yadav  
i am nishant yadav  
i am nishant yadav  
i am nishant yadav  
i am nishant yadav  
i am nishant yadav  
i am nishant yadav  
i am nishant yadav  
i am nishant yadav

this is a center

this is a left

this is a right

# 1 Lists

## 1.1 learning

## 1.2 thinking

# 2 formatting


## 2.1 text

## 2.2 words

Macros

### Critical Thinking Questions

Figure 1: The Squeeze Theorem

1.  Let's examine the function  $y = \frac{x}{3^3 + x - 1}$ .
2. This is the symbol for the set of all real numbers:  $\mathbb{R}$ .
3. This is the symbol for the set of integers:  $\mathbb{Z}$ .
4. This is the symbol for the set of rationals:  $\mathbb{Q}$ .
5. Is it possible for a sequence to converge to two different numbers? If so, give an example. If not, explain why not.
6. Explain how to use partial sums to determine if a series converges or diverges. Give an example
7. Explain why  $\int_1^{\infty} f(x) dx$  and  $\sum_{n=1}^{\infty} a_n$  need not converge to the same value, even if they are both convergent.
8. In your own words, explain the Alternating Series Remainder Theorem. How is this theorem useful?
9. Explain the difference between absolute and conditional convergence. Give an example of each.

10. The Ratio Test is inconclusive if  $\lim_{n \rightarrow \infty} \left| \frac{a_{n+1}}{a_n} \right| = 1$ . Give an example of one convergent series and one divergent series for which  $\lim_{n \rightarrow \infty} \left| \frac{a_{n+1}}{a_n} \right| = 1$ . Explain how you determined your examples.