

```

\documentclass[11pt,a4paper]{report}
\usepackage[utf8]{inputenc}
\usepackage{amsmath}
\usepackage{amsfonts}
\usepackage{amssymb}
\usepackage{enumerate}
\usepackage{float}
\usepackage{hyperref}
\usepackage{tikz,pgfplots}
\usepackage{graphicx}
\usepackage[left=2cm,right=2cm,top=2cm,bottom=2cm]{geometry}
\parindent 0px
\pagestyle{empty}

\title{My First \LaTeX\ Document}
\author{Rupak Koirala}
\date{\today}

% Redefine section numbering format
\renewcommand{\thesection}{\arabic{section}}
\setcounter{secnumdepth}{3}
\setcounter{tocdepth}{3}

\def\eq1{y = \dfrac{\cdot}{\cdot}^2+5x+8}}
\newcommand{\set}[1]{\setlength\itemsep{#1 em}}

\newcommand\calculator{\tikz{
    \node (c) [inner sep=0pt, draw, fill=black, anchor=south
west]{\phantom{N}};
    \begin{scope}[x=(c.south east),y=(c.north west)]
\fill[white] (.1,.7) rectangle (.9,.9);
    \foreach \x in {.1, .33, .55, .79}{
    \foreach \y in {.1, .24, .38, .53}{
    \fill[white] (\x,\y) rectangle +(.11,.07);}}
    \end{scope} }}
\def\calcicon#1{\noindent#1 \calculator\ }

\begin{document}
\tableofcontents
\maketitle

Hello World from Latex\\
Hello!This is my first \LaTeX\ document. \\
Rectangle has sides  $(x+1)$  and  $(x+3)$ . \\
The equation of  $A(x) = x^2+4x+3$  gives the area of rectangle.
The equation of  $A(x) = x^2+4x+3$  gives the area of rectangle. \
\

Superscripts  $2x^3+5$ 
 $2x^{34}+5$ 

```

$2x^{3x+4}$
 $2x^{3x^4+5}$
 $2x^{(3x^{45}+5)}+1000$

Subscripts x_1

x_{12}
 x_{1_2}
 $x_{1_{2_3}}$
 $x_{1_{2_{35}}}$
 $a_0, a_1, a_2, \dots, a_{100}$

Greek Letters

π
 Π
 α
 $A = \pi r^2$

Trigonometric Functions

$y = \sin x$
 $y = \cos x$
 $y = \csc \theta$
 $y = \cos^{-1} x$

Log Functions

$y = \log x$
 $y = \log_5 x$
 $y = \ln_5 x$

Roots

$\sqrt{4}$
 $\sqrt[4]{3}$
 $\sqrt{x^2+y^2}$
 $\sqrt{1 + \sqrt{x}}$

Fraction

$\frac{2}{5}$
About $\frac{2}{3}$ of the glass is full. \[\[16pt]
About $\frac{2}{3}$ of the glass is full.
 $\frac{\sqrt{x+1}}{\sqrt{x+2}}$
 $\frac{\sqrt{x+1}}{\sqrt{x}+2}$
 $\frac{1}{1 + \frac{1}{x}}$

Brackets \[\[10pt]

The distributive property states that $a(c+b) = ac+ab$, for all $a, b, c \in \mathbb{R}$. \[\[6pt]
The equivalence class of a is $[a]$. \[\[
Set $A = \{1, 2, 3\}$. \[\[
Movie Ticketcost $\$11.25$

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

```


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


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


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


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


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


```

Tables\ [10pt]

```

\begin{tabular}{|c|c|c|c|c|} \hline
x & 1 & 2 & 3 & 4 & 5 \\ \hline
f(x) & 10 & 11 & 12 & 13 & 14 \\ \hline
\end{tabular}

```

\vspace{1 cm}

```

\begin{table}[H]
\centering
\def\arraystretch{1.5}
\begin{tabular}{|c|c|c|c|c|} \hline
x & 1 & 2 & 3 & 4 & 5 \\ \hline
f(x) & \frac{1}{2} & 11 & 12 & 13 & 14 \\ \hline
\end{tabular}
\caption{The newly created table.}
\end{table}

```

```

\begin{table}[H]
\centering
\caption{The newly created table.}
\def\arraystretch{1.5}
\begin{tabular}{|l|p{8cm}|} \hline
f(x) & f'(x) \\ \hline
x>0 & The function f(x) is increasing. The function f(x) is increasing. The function f(x) is increasing. The function f(x) is increasing. \\ \hline
\end{tabular}
\end{table}

```

Arrays:

```

\begin{align}
5x^2-9=x+3 \\
5x^2-x-12 = 0
\end{align}

```

\begin{align*}

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5x^2-9&=x+3\\
5x^2-x-12 &= 0\\
&=12+x-3x^2
\end{align*}

```

```

\begin{enumerate}
\item pencil
\item calculator
\item ruler
\item notebook
  \begin{enumerate}
    \item notes
    \item assessments
      \begin{enumerate}
        \item tests
        \item project
      \end{enumerate}
    \end{enumerate}
\item highlighters
\end{enumerate}

```

```
\vspace{1 cm}
```

```

\begin{enumerate}[A.]
\item pencil
\item calculator
\item ruler
\item notebook
\end{enumerate}

```

```
\vspace{1 cm}
```

```

\begin{enumerate}\setcounter{enumi}{5}
\item pencil
\item calculator
\item ruler
\item notebook
\end{enumerate}

```

```
\pagebreak
```

```

\begin{itemize}
\item pencil
\item calculator
\item ruler
\item notebook
\end{itemize}
\vspace{1 cm}

```

```

\begin{itemize}
\item pencil

```

```

\item calculator
\item ruler
\item notebook
  \begin{itemize}
    \item notes
    \item assessments
      \begin{itemize}
        \item tests
        \item project
      \end{itemize}
    \end{itemize}
\item highlighters
\end{itemize}
\vspace{1 cm}

```

```

\begin{enumerate}
\item[a)] pencil
\item[b)] calculator
\item[3] ruler
\item[four] notebook
\end{enumerate}

```

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Text Formatting:\\

```

This will produce the \textit{italicized} text.\\
This will produce the \textbf{Bold} text.\\
This will produce the \textsc{Small Caps} text.\\
This will produce the \texttt{Typewriter font} text.\\
Please visit google website at \texttt{www.google.com}\\
Please visit google website at \url{http://www.google.com}\\
Please visit google website at \href{http://www.google.com}
{GOOGLE}.
\vspace{1 cm}

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```

Please change the font of Rupak Koirala.\\
Please change the font of \begin{large}Rupak Koirala\end{large}.\\
Please change the font of \begin{Large}Rupak Koirala\end{Large}.\\
Please change the font of \begin{huge}Rupak Koirala\end{huge}.\\
Please change the font of \begin{Huge}Rupak Koirala\end{Huge}.\\
Please change the font of \begin{normalsize}Rupak
Koirala\end{normalsize}.\\
Please change the font of \begin{small}Rupak Koirala\end{small}.\\
Please change the font of \begin{scriptsize}Rupak
Koirala\end{scriptsize}.\\
Please change the font of \begin{tiny}Rupak Koirala\end{tiny}.\\

```

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\vspace{1 cm}

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```

\begin{center}
The line is centered.

```

```

\end{center}

\begin{flushleft}
The line is left .
\end{flushleft}

\begin{flushright}
The line is right .
\end{flushright}

\Large
The line is centered.\\

The line is left .\\

The line is right .

\vspace{1 cm}

\pagebreak

\section{Linear Functions}

    \subsection{Slope Intercept form}

        \subsubsection{Example 1}
        \subsubsection{Example 2}
        \subsubsection{Example 3}
        \subsubsection{Example 4}

    \subsection{Standard form}

\section{Quadratic Functions}

\section{Packages, Graphics and Macros}

%\includegraphics[scale=0.7]{abc}
%\includegraphics[width = 3in, height = 3in]{abc}
%\begin{center}
%\includegraphics[width=0.4\textwidth]{abc}
%\end{center}

\begin{figure}[H]
\centering
\includegraphics[width=0.4\textwidth]{abc}\\
\caption{This is a important image.}
\end{figure}

\begin{enumerate}
\set{1.2}
\item \calculator\ The set of all real numbers:   $\mathbb{R}$ 

```

```

\item The set of all integers:  $\mathbb{Z}$ 
\item The set of all rational numbers:  $\mathbb{Q}$ 
\item Lets understand the function  $\leq 1$ .
\end{enumerate}

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\vspace{1.5 cm}

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\textbf{Calculus:}

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The function  $f(x) = (x-3)^2 + \frac{1}{2}$  had domain  $\mathrm{D}_f: (-\infty, \infty)$  and range  $\mathrm{R}_f: \left[\frac{1}{2}, \infty\right)$ 

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 $\lim_{x \rightarrow a^{-1}} f(x)$ 

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


```

```


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


```

```

 $\int_a^b x^2 \, dx$ 

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```


$$\int_a^b x^2 \, dx$$


```

```


$$\int_a^b x^2 \, dx = \left[ \frac{x^3}{3} \right]_a^b = \frac{b^3}{3} - \frac{a^3}{3}$$


```

```


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


```

```


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


```

```

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

```

```


$$\frac{dy}{dx}$$


```

```

\end{document}

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