```latex
\documentclass{beamer}
\usepackage[utf8]{inputenc}
\usepackage[most]{tcolorbox}
\usepackage{graphicx}
\usepackage{fancybox}
\usepackage{amsmath}
\usepackage{xcolor}
\usepackage{eso-pic}
\title{PRESENTATION}
\institute{MATA SUNDRI COLLEGE FOR WOMEN\\UNIVERSITY OF DELHI}
\author{RADHA TIWARI\\
MAT/20/131\\
20044563054}
\date{}
\usetheme{Frankfurt}
\usecolortheme{default}
\setbeamertemplate{background}{\includegraphics[width=\paperwidth,height=\paperheight]{bor.jpeg}}
\begin{document}
\begin{frame}
   \titlepage
\end{frame}
\begin{frame}{Donald book eg 9.5}
\begin{itemize}
    \item
    Let x=$(x_1\ldots,x_n)$, where the $ x_i $ are non negative real numbers.Set $$ M_r(x)=\left(\frac{x_1^r+x_2^r+\ldots+x_n^r}{n}\right)^\frac{1}{r},r \in R \backslash\{0\},$$ and $$ M_0(x)={(x_1x_2\ldots x_n)}^\frac{1}{n} $$ \\
We call $M_r(x)$ \emph{the rth power mean of x.}\\
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    $$ \\
We call $M_r(x)$ \emph{the rth power mean of x.}\\
Claim: $$\lim_{r \to\ 0}
M_r(x)=M_0(x)$$
\end{itemize}
\end{frame}
\newpage
\begin{frame}{Donald book eg 9.5}
 \begin{itemize}
     \item
     Define
   $$V _n = \begin{bmatrix}
     1 & 1 & 1 & \ldots & 1\\
     x_1 & x_2 & x_3 & \ldots & x_n\\
     {x_1}^2 & {x_2}^2 & {x_3}^2 & \ldots & {x_n}^2\\
     \vdots & \vdots & \vdots &\ddots &\vdots\\
     {x_1}^{n-1} & {x_2}^{n-1} &{x_3}^{n-1} & \ldots & {x_n}^{n-1}
     \end{bmatrix}$$
     We call $V_n$ the \emph{Vandermonde} matrix of order n.

 Claim :$$ \det V_n =\prod_{1\leq\ i\leq\ j\leq\ n}(x_j-x_i)$$
\end{itemize}
\end{frame}


\begin{frame}{Question 4 Part 1}
   $$ {3}^3+{4}^3+{5}^3={6}^3$$
$$\sqrt{100}=10$$
$${(a+b)}^3={a}^3+3{a}^2b+3a{b}^2+{b}^3$$
$$\sum_{k=1}^n K=\frac{n(n+1)}{2}$$
$$\frac{\pi}{4}=\frac{1}{1}-\frac{1}{3}+\frac{
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$$\sum_{k=1}^n K=\frac{n(n+1)}{2}$$
$$\frac{\pi}{4}=\frac{1}{1}-\frac{1}{3}+\frac{1}{5}-\frac{1}{7}+\frac{1}{9}-\frac{1}{11}+..
$$
\end{frame}
\begin{frame}{Question 4 Part 2}
   $$\cos{\theta}=\sin{({90}^0-\theta)}$$
$$e^{i\theta}=\cos{\theta}+i\sin{\theta}$$
 $$\lim_{\theta\to\ 0}
 \frac{\sin{\theta}}{\theta}=1$$
$$\lim_{x\to\infty}\frac{\pi(x)}{x/logx}=1$$
$$\int_{-\infty}^{\infty}{e}^{{-x}^{2}}dx=\sqrt{\pi}$$
\end{frame}


 \newpage
 \begin{frame}{Question 5 Part 1}
 \begin{itemize}
     \item Positive numbers a,b and c are the side lengths of a triangle if and only is $a+b>c$, $b+c>a$, and $c+a>b$.
 \end{itemize}
\begin{itemize}
    \item The area of a triangle with side lengths a, b, c is given by \emph{Heron's} formula:$$A=\sqrt{s(s-a)(s-b)(s-c)},$$
where s is the semiperimeter $(a+b+c)/2.$
\end{itemize}
\begin{itemize}
    \item This volume of a regular tetrahedron of edge length 1 is $\sqrt{2}/12.$
\end{itemize}
\begin{itemize}
    \item The quadratic equation $a{x}^2+bx+c=0$ has roots $$r_1,r_2=\frac{-b\pm\sqrt{{b}^2-4ac}}{2a}
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\end{frame}

\begin{frame}{Question 5 Part2}
\begin{itemize}
    \item The derivative of a function f,denoted f',is defined by $$f'(x)=\lim_{h\to\ 0}\frac{f(x+h)-f(x)}{h}$$
    \item A real valued function f is convex on an interval I if $$f(\lambda x+(1-\lambda)y)\leq\lambda f(x)+(1-\lambda)f(y),$$
    or all $ x,y\in I$ and  $0\leq \lambda\leq 1$.
\end{itemize}
\end{frame}
\begin{frame}{Question 5 Part 3}
\begin{itemize}
    \item The general solution to the differential equation $$y"-3y'+2y=0$$

is $$y=C_1{e}^x+C_2{e}^{2x}.$$
\item The \emph{Fermat} number $F_n$ is defined as $$F_n= {{2}^{2}}^{n},n\geq 0. $$
\end{itemize}


\end{frame}
\begin{frame}{Question 6 Part 1}
  $$\frac{d}{dx}\left(\frac{x}{x+1}\right)=\frac{1}{{(x+1)}^2}$$
  $$\lim_{n \to \infty}\left(1+\frac{1}{n}\right)^n = e$$
  $$\left|
 \begin{array}{cc}
     a& b \\
     c& d\\
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      a& b \\
      c& d\\
 \end{array}
 \right|=ad-bc$$
 $$R_\theta=
\begin{bmatrix}
 \cos{\theta} & -\sin{\theta}\\
 \sin{\theta} &  \cos{\theta}\\
\end{bmatrix}
 $$
 $$\left|
 \begin{array}{ccc}
 \textbf{i} & \textbf{j} & \textbf{k} \\
   a_1 & a_2 & a_3 \\
   b_1 & b_2 & b_3 \\
 \end{array}
 \right|
 =
 {\left|
 \begin{array}{cc}
     a_2 & a_3 \\
    b_2  & b_3 \\
 \end{array}
 \right|}\textbf{i}
 -
 {\left|
 \begin{array}{cc}
     a_1 & a_3 \\
    b_1  & b_3 \\
 \end{array}
 \right|}\textbf{j}
 +
 {\left|
 \begin{array}{cc}
     a_1 & a_2 \\
    b_1  & b_2 \\
```

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\end{frame}
\begin{frame}{Question 6 Part 2}
$$\begin{bmatrix}
 a_{11 }& a_{12}\\
 a_{21} & a_{22}\\
\end{bmatrix}
\begin{bmatrix}
 b_{11 }& b_{12}\\
 b_{21} & b_{22}\\
\end{bmatrix}
=
\begin{bmatrix}
a_{11}b_{11 } + & a_{12}b_{21} & a_{11}b_{12 } + & a_{12}b_{22}\\
a_{21}b_{11 } + & a_{22}b_{21} & a_{21}b_{12 } + & a_{22}b_{22}\\
\end{bmatrix}$$
$$f(x)=
{\left\{
\begin{array}{ccc}
  {x}^2, & x< 0 \\
 x^2 , & 0 \leq x \leq 2\\
 4, & x>2
\end{array}
\right.}$$

\end{frame}
\begin{frame}{Question 7 Part 1}
 \[1 + 2 =3\]
 \[4 + 5 +6  = 7 + 8\]
 \[9 + 10 + 11 + 12 = 13 + 14 + 15 \]
 \[16 + 17 + 18 + 19 + 20 = 21 + 22 + 23 + 24\]
 \[25 + 26 + 27 + 28 + 29 + 30 = 31 + 32 + 33 + 34 + 35\]
\end{frame}
 \begin{frame}{Question 7 Part 2}
   \begin{align*}
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      \begin{align*}
      (a+b)^2 \quad &=\quad (a+b)(a+b)\\
      &=\quad (a+b)a + (a+b)b\\
      &=\quad a(a+b) + (a+b)b\\
      &=\quad a^2+ab +ba +b^2\\
      &=\quad a^2+ab +ab +b^2\\
      &=\quad a^2+ 2ab +b^2\\
    \end{align*}
  \end{frame}
  \begin{frame}{Question 7 Part 3}
  \begin{eqnarray*}
   \tan(\alpha+\beta+\gamma)&=&\frac{\tan(\alpha+\beta)+\tan\gamma}{1-\tan(\alpha+\beta)\tan\gamma}\\\
   &=&\frac{\frac{\tan\alpha+\tan\beta}{1-\tan\alpha\tan\beta}+\tan\gamma}{1-\left(\frac{\tan\alpha+\tan\beta}{1-\tan\alpha\tan\beta}\right)\tan\gamma}\\\
&=&\frac{\tan\alpha+\tan\beta+(1-\tan\alpha\tan\beta)\tan\gamma}{1-\tan\alpha\tan\beta-(\tan\alpha+\tan\beta)\tan\gamma}\\\
&=&\frac{\tan\alpha+\tan\beta+\tan\gamma-\tan\alpha\tan\beta\tan\gamma}{1-\tan\alpha\tan\beta-\tan\alpha\tan\gamma-\tan\beta\tan\gamma}\\\

  \end{eqnarray*}
  \end{frame}
  \begin{frame}{Question 7 Part 4}
  \begin{eqnarray*}
  \prod_{p}\left(1-\frac{1}{p^2}\right)&=&\prod_p\frac{1}{1+\frac{1}{p^2}+\frac{1}{p^4}+\hdots}\\
      &=&{\left(\prod_p\left(1+\frac{1}{p^2}+\frac{1}{p^4}+\hdots\right)\right)}^{-1}\\
      &=&{\left(1+\frac{1}{2^2}+\frac{1}{3^2}+\frac{1}{4^2}+\hdots \right)}^{-1}\\
  &=&\frac{6}{\pi^2}
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alpha\tan\beta}+\tan\gamma}{1-\left(\frac{\tan\alpha+\tan\beta}{1-\tan\alpha\tan\beta}\right)\tan\gamma}\\\
&=&\frac{\tan\alpha+\tan\beta+(1-\tan\alpha\tan\beta)\tan\gamma}{1-\tan\alpha\tan\beta-(\tan\alpha+\tan\beta)\tan\gamma}\\\
&=&\frac{\tan\alpha+\tan\beta+\tan\gamma-\tan\alpha\tan\beta\tan\gamma}{1-\tan\alpha\tan\beta-\tan\alpha\tan\gamma-\tan\beta\tan\gamma}\\\

 \end{eqnarray*}
 \end{frame}
 \begin{frame}{Question 7 Part 4}
 \begin{eqnarray*}
 \prod_{p}\left(1-\frac{1}{p^2}\right)&=&\prod_p\frac{1}{1+\frac{1}{p^2}+\frac{1}{p^4}+\hdots}\\
    &=&{\left(\prod_p\left(1+\frac{1}{p^2}+\frac{1}{p^4}+\hdots\right)\right)}^{-1}\\
    &=&{\left(1+\frac{1}{2^2}+\frac{1}{3^2}+\frac{1}{4^2}+\hdots \right)}^{-1}\\
 &=&\frac{6}{\pi^2}

 \end{eqnarray*}
 \end{frame}
 \begin{frame}
\includegraphics[width=\paperwidth,height=\paperheight]{WhatsApp Image 2021-10-16 at 07.19.18 (2).jpeg}

 \end{frame}

\end{document}

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