```latex
\documentclass{beamer}
\usepackage[utf8]{inputenc}
\usepackage{xcolor}
\usepackage{graphics}
\title{Assignment 2}
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\date{}
\usetheme{CambridgeUS}
\usecolortheme{beaver}
\begin{document}
\maketitle
\section{}
\begin{frame}{Exercise 9.5}
%\frametitle{Exercise 9.5}
\begin{itemize}
    \item Let$\mathbf{x}=(x_1,\ldots,x_n)
    $,where the $x_i$ are nonnegative
    real numbers.Set\[M_r(\mathbf{x})=\le
    ft(\frac{x_1^r+x_2^r+\cdots+x_n^r}{n}
    \right)^{1/r},
    \;\;r \in\mathbf{R}\setminus
    \{0\},\]and
    \[M_0(\mathbf{x})=\left(x_1 x_2
    \ldots x_n \right)^{1/n}\]
    We call $M_r(\mathbf{x})$ the
    \emph{$r$th power mean} of
    $\mathbf{x}$\\
    Claim:
    \[\lim_{r \rightarrow 0}
    M_r(\mathbf{x})=
    M_0(\mathbf{x}).
    \]
    \end{itemize}
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28      \end{frame}
29
30
31      \begin{frame}{Exercise 9.5}
32      %\frametitle{Exercise 9.5}
33      \begin{itemize}
34      \item Define
35      \[ V_n=
36      \left[
37      \begin{array}{ccccc}
38      1 & 1 & 1 & \ldots & 1\\
39      x_1 & x_2 & x_3 & \ldots & x_n\\
40      x_1^2 & x_2^2 & x_3^2 & \ldots &
        x_n^2\\
41      \vdots & \vdots & \vdots & \ddots &
        \vdots\\
42      x_1^{n-1} & x_2^{n-1} & x_3^{n-1} &
        \ldots & x_n^{n-1}
43      \end{array}
44      \right]. \]
45      We call $V _n$ the \emph{Vandermonde
        matrix} of order $n$.\\
46      Claim:
47      \[\det V_n =\prod_{1 \leq i < j \leq
        n}(x_j-x_i).\]
48      \end{itemize}
49      \end{frame}
50
51
52      \begin{frame}{Question 4}
53    \begin{block}{Make the following
      equations}
54    \end{block}
55    \begin{itemize}
56    \item \[{3^3}+{4^3}+{5^3}={6^3}\]
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58  \item\[{(a+b)^3} = {a^3} + 3{a^2}b +
    3a{b^2}+ {b^3}\]
59  \item\[\sum_{k=1}^n k =
    \frac{n(n+1)}{2}\]
60  \end{itemize}
61  \end{frame}
62
63
64  \begin{frame}{Remaining part of Question
    4}
65    \begin{itemize}
66    \item\[\frac{\pi}{4} =\frac{1}{1} -
      \frac{1}{3} + \frac{1}{5} -\frac{1}{7}
      + \frac{1}{9}  -\frac{1}{11}\]
67     \item $$\cos \theta=\sin(90 -
       \theta)$$
68  \item$$e^{ \i \theta }=\cos \theta +
    i\sin\theta$$
69  \item$$\lim_{\theta \rightarrow\ 0}
    \frac{sin \theta}{\theta} = 1$$
70  \item$$\lim_{x\rightarrow
    \infty}\frac{\pi (x)}{x/log x}=1$$
71   \item \[\int_{-\infty}^{\infty}e^{x^2
     },dx=\sqrt{\pi}\]
72    \end{itemize}
73    \end{frame}
74
75
76
77    \begin{frame}{Question 5}
78     \begin{block}{ Typeset the following
       Sentence}
79     \end{block}
80     \begin{itemize}
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81  \item Positive numbers a, b, and c are
    the side lengths of a triangle if and
    only of $a + b \geq c$ , $b + c \geq a$
    and $c + a \geq b$\\
82  \item The area of a triangle with side
    length a, b c is given by \emph{Heron's}
    \emph{Formula}:\\
83  \[A= \sqrt{s(s-a)(s-b)(s-c)}\],\\
84  where s is the semiperimeter (a+b+c)/2
85   \end{itemize}
86   \end{frame}
87
88
89
90   \begin{frame}{Remaining part of
     Question 5}
91   \begin{itemize}
92    \item The volume of a regular
      tetrahedron of edge length 1  is
      $\sqrt{2} / 12$
93   \item  The quadratic equation $a{x^2} +
     bx +c =0 $ has roots
94  \[ {r_1}, {r_2}=  \frac{-b{ \pm}\sqrt{
    {b^2} - 4ac} } {2a}\]
95   \item The derivative of the functions
     f, is defined by
96  \[{f^'} (x) = \lim_{h \rightarrow
    0}\frac{f(x+h) - f(x)}{h}\]
97   \end{itemize}
98   \end{frame}
99
100
101
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\begin{frame}{Remaining part of Question 5}
    \begin{itemize}
\item A real - valued functions  f is \emph{convex} on a an interval \emph{I} if
\[ f ({\lambda} x + (1 -{\lambda})y) \leq {\lambda}f(x) + (1-{\lambda})f(y)\]
for all \emph{x, y} ${\in}$  \emph{I} and $ 0 \leq 1 $

\item  The general solution  to the differential equation
\[{y^''} - 3{y^'} + 2y = 0\]
is
\[y = {C_1}{e^x} + {C_2}{e^2^x}\]
 \item The \emph{Fermat Number} Fn is defined as
 $${F_n} = {2^2^n}, n \geq 0 $$
    \end{itemize}
  \end{frame}



  \begin{frame}{Question 6}
 \begin{block}{Make the following equations. Notice the large delimiters.}
 \end{block}
 \begin{itemize}
 \item \[\frac{d}{dx} \left(\frac{x}{x+1}\right)= \frac{1}{(x+1)^2}\]
 \item$$\lim_{n \rightarrow\infty}\left(1+\frac{1
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  }{n}\right)^n = e$$
\item\[\begin{vmatrix}
a & b\\
c & d
\end{vmatrix} = ad-bc\]
\item \[R_\theta = \begin{bmatrix}
\cos\theta & -sin\theta \\ \sin\theta
&\cos\theta \end{bmatrix}\]
\end{itemize}
  \end{frame}



 \begin{frame}{Remaining Part of Question
 6}
  \begin{itemize}
  \item\[\left|\begin{array}{ccc}
i & j & k\\
a_1 & b_2 & a_3\\
b_1 & b_2 & b_3
\end{array}\right|=\left|\begin{array}{cc
}
a_2 & a_3\\
b_2 & b_3
\end{array}\right|\textbf{i}-\left|\begin
{array}{cc}
a_1 & a_2\\
b_1 & b_2
\end{array}\right|\textbf{j}-\left|\begin
{array}{cc}
a_1 &b_2\\
b_1 & b_2
\end{array}\right|
\textbf{k}\]
\item $$\left[\begin{array}{cc}
a_{11} & a_{12}\\
b_{21} & b_{22}
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156  \end{array}\right]
     \left[\begin{array}{cc}
157  b_{11}  & b_{12}\\
158  b_{21} & b_{22}
159  \end{array}\right]=\left[\begin{array}{cc
     }
160  a_{11} b_{11} + a_{12}  b_{21} & a_{11}
     b_{12} + a_{12} b_{22}\\
161  a_{21} b_{11} + a_{22} b_{21} & a_{21}
     b_{12} +a_{22} b_{22}
162  \end{array}\right]$$
163  \item \[f(x)=\left\{\begin{array}{lr}
164  -x^2 & x<0\\
165  x^2 & 0\le x\le2 \\
166  4& x>2\end{array}\right.\]
167    \end{itemize}
168   \end{frame}
169
170
171   \begin{frame}{Question 7 Make the
     following multi-line equations}
172   \begin{block}{Part 1}
173    \begin{eqnarray*}
174  1+2 &= &3\\
175  4 + 5 + 6  &=& 7 + 8\\
176  9 + 10 + 11 + 12 &= &13 + 14 + 15\\
177  16 + 17 + 18 + 19 + 20 &=& 21 + 22 + 23 +
     24\\
178  25 + 26 + 27 + 28 + 30& = &31 + 32 + 33 +
     34 + 35\\
179   \end{eqnarray*}
180   \end{block}
181    \end{frame}
182
183
184    \begin{frame}{Remaining part of
       Question 7 }
185     \begin{block}{Part 2}
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   \begin{block}{Part 2}
    \begin{eqnarray*}
(a+b)^2&=&(a+b)(a+b)\\
&=&(a+b)a +(a+b)b\\
&=&a(a+b)+b(a+b)\\
&=&a^2+ab+ba+b^2\\
&=&a^2+ab+ab+b^2\\
 \end{eqnarray*}
 \end{block}
  \end{frame}


  \begin{frame}{Remaining part of
  Question 7}
   \begin{block}{Part 3}
   \begin{eqnarray*}
tan(\alpha+\beta+\gamma)&=&\frac{tan(\alp
ha+\beta)+tan\gamma}{1-tan(\alpha+\beta)t
an\gamma}\\
&=&\frac{\frac{tan\alpha+tan\beta}{1-tan\
alpha tan\beta}+tan\gamma}{1-(\frac{tan\a
lpha+tan\beta}{1-tan\alpha
tan\beta})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{block}
  \end{frame}


  \begin{frame}{Remaining part of
  Question 7}
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209   \begin{frame}{Remaining part of
      Question 7}
210    \begin{block}{Part 4}
211   \begin{eqnarray*}
212   \prod_p \left(1-\frac{1}{p^2}\right)&=&\
      prod_p \frac{1}{1+\frac{1}{p^2}+\frac{1}
      {p^4}+\cdots}\\
213   &=&\left(\prod_p \left
      (1+\frac{1}{p^2}+\frac{1}{p^4}+\cdots\ri
      ght)\right)^{-1}\\
214   &=& \left(1+
      \frac{1}{2^2}+\frac{1}{3^2}+\frac{1}{4^2
      }+\cdots \right) ^{-1}\\
215   &=&\frac{6}{\pi^2}
216       \end{eqnarray*}
217       \end{block}
218   \end{frame}
219
220
221   \begin{frame}{Thankyou}
222
223   \includegraphics[width=11cm,height=5cm]
      {thankyou 2 .png}
224    \end{frame}
225
226
227   \end{document}
```