Assignment

Source | Rich Text

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\documentclass{beamer}
\usepackage[utf8]{inputenc}
\usepackage{graphicx}
\usepackage{gensymb}
\title{Document}
\institute{MATA SUNDRI COLLEGE FOR WOMEN\\ DELHI UNIVERSITY}
\author{Ritika Kadyan\\ Roll No.- MAT/20/104\\ University Roll No.-20044563034}
\date{}
\usetheme{Warsaw}
\begin{document}
\begin{frame}
\titlepage
\end{frame}

\begin{frame}{Example 9.6}
1) Let x=$(x_1,x_2,\ldots,x_n)$ 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.} \\
Claim: $$lim_{r\rightarrow 0} M_r(x)=M_0(x)$$
\end{frame}

\begin{frame}
2) Define
$$V_n =\left[\begin{array}{cccc}
1 & 1 & \ldots & 1\\
x_1 & x_2 & \ldots & x_n \\
x_1^2 & x_2^2 &\ldots & x_n^2\\
\vdots & \vdots & \vdots & \ldots & \vdots\\
x_1^{n-1} & x_2^{n-1} &\ldots & x_n^{n-1}\\
\end{array}\right]$$
We call $V_n$ the \emph{vandermode matrix} of order $n$. \\
Claim: \det $$V_n=\prod_{1\leq i<j \leq n}{x_j-x_i}$$
\end{frame}
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\begin{frame}{Q4 Make the following equations.}
\begin{itemize}
    \item $$ 3^3+4^3+5^3=6^3 $$
    \item $$ \sqrt{100}=10 $$
    \item $$(a+b)^3=a^3×3a^2b+3ab^2+b^3 $$
    \item $$ \sum^{n}_{k=1} k=\frac{n(n+1)}{2} $$
    \item $$ \frac{\pi}{4}=\frac{1}{1}-\frac{1}{3}+\frac{1}{5}-\frac{1}{
    7}+\clots $$
\end{itemize}
\end{frame}

\begin{frame}{Q4 Make the following equations.}
\begin{itemize}
    \item $$\cos\theta=\sin(90^{\circ}-\theta) $$
    \item $$ e^{i\theta}=\cos\theta+i\sin\theta $$
    \item $$\lim_{\theta\rightarrow0}\frac{\sin\theta}{\theta}=1 $$
    \item $$\lim_{x\rightarrow\infty}\frac{\pi(x)}{\frac{x}{\log x}}=1
    $$
    \item $$\int^{\infty}_{-\infty}e^{-x^2}dx=\sqrt{\pi} $$
\end{itemize}
\end{frame}

\begin{frame}{Q5 Typeset the following sequences.}
\begin{itemize}
    \item Positive numbers a,b and c are the side lengths of a triangle
    if and only if $ a+b > c , b+c > a $ and $ c+a > b$
    \item The area of triangle with side lengths \emph{a,b,c} is given
    by \emph{Heron's formula:}
    $$ A=\sqrt{s(s-a)(s-b)(s-c)}, $$
    where s is the semi perimeter $\frac{(a+b+c)}{2}$
    \item The volume of a regular tetrahedron of edge length 1 is
    $\frac{\sqrt{2}}{12}$
    \item The quadratic equation $ax^2+bx+c=0$ has roots $$r_1,r_2=
    \frac{-b\pm\sqrt{b^2-4ac}}{2a}$$
\end{itemize}
\end{frame}

\begin{frame}{Q5 Typeset the following sequences.}
\begin{itemize}
    \item The \emph{derivative} of a function \emph{f}. denoted
    \emph{f'}, is defined by
    $$ f'(x)=\lim_{h\rightarrow 0} \frac{f(x+h)-f(x)}{h} $$
    \item A real valued function \emph{f} is \emph{convex} on an
    interval \emph{I} if $$ f(\lambda x+(1-\lambda)y) \leq\lambda f(x) +
    (1-\lambda)f(y) $$ , for all \emph{x,y} $\in$ I and $
    0\leq\lambda\leq 1 .$
\end{itemize}
\end{frame}

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\begin{frame}{Q5 Typeset the following sequences.}
\begin{itemize}
    \item The general solution to the differential equation
    $$y''-3y'+2y=0 $$ is
    $$ y=C_1e^x+ C_2e^{2x} $$     \item The \emph{Fermat number} $F_n$
    is defined as $$F_n=2^{2^n} , n\geq 0. $$
\end{itemize}
\end{frame}

\begin{frame}{Q6 Make the following equations. Notice the large
delimiters}
\begin{itemize}
    \item $$ \frac{d}{dx}\left(\frac{x}{x+1}\right)= \frac{1}{(x+1)^2}
    $$
    \item $$ \lim_{n\rightarrow\infty} \left (1+\frac{1}{n}\right)^n=e
    $$
    \item $$ \left | \begin{array}{cc}
    a&b\\
    c&d \end{array}\right |=ad-bc $$
    \item $$ R_\theta = \left[\begin{array}{cc}
    \cos\theta &-\sin\theta \\
    \sin\theta & \cos\theta
    \end{array}\right] $$
\end{itemize}
\end{frame}

\begin{frame}{Q6 Make the following equations. Notice the large
delimiters.}
\begin{itemize}
    \item $$\left|\begin{array}{ccc}
    \textbf{i}&\textbf{j}&\textbf{k}\\
    a_1&a_2&a_3&\\
    b_1&b_2&b_3&\\
    \end{array}\right|=\left|\begin{array}{cc}
    a_2&a_3\\
    b_2&b_3
    \end{array}\right| \textbf{i}-\left|\begin{array}{cc}
    a_1&a_3\\
    b_1&b_3
    \end{array}\right| \textbf{j}+\left|\begin{array}{cc}
    a_1&a_2 \\
    b_1&b_2
    \end{array}\right| \textbf{k} $$
    \item $$ \left[\begin{array}{cc}
    a_{11}&a_{12} \\
    a_{21}&a_{22}
    \end{array}\right]\left[\begin{array}{cc}
    b_{11}&b_{12} \\
    b_{21}&b_{22}
    \end{array}\right]=\left[\begin{array}{cc}
    a_{11}b_{11}+a_{12}b_{12}&a_{11}b_{12}+a_{12}b_{22}   \\
    a_{21}b_{11}+a_{22}b_{21}&a_{21}b_{12}+a_{22}b_{22} \\
    \end{array}\right] $$
    \item $$f(x)=\left\{\begin{array}{lr}-x^2, & x<0 \\
    x^2 ,&0\leq x \leq 2 \\
    4, & x>2 \end{array}\right. $$
\end{itemize}
\end{frame}
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\begin{frame}{Q7 Make the following multi line equations. }
\begin{eqnarray*}
   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{eqnarray*}
\end{frame}

\begin{frame}{Q7 Make the following multi line equations. }
\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\\
&=&a^2+2ab+b^2
\end{eqnarray*}
\end{frame}

\begin{frame}{Q7 Make the following multi line equations.}
\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-(\frac{\tan\alpha +
\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\beta\tan\gamma-\tan\gamma\tan\alpha}
\end{eqnarray*}
\end{frame}

\begin{frame}{Q7 Make the following multi line equations.}
\begin{eqnarray*}
\prod_p\left(1-\frac{1}{p^2}\right)&=&\prod_p\frac{1}{1+\frac{1}{p^2}+\f
rac{1}{p^4}+cdots}\\
&=&\left(\prod_p\left(1+\frac{1}{1+\frac{1}{p^2}+\frac{1}{p^4}+\cdots}\r
ight)\right)^{-1}\\
&=&\left(1+\frac{1}{2^2}+\frac{1}{3^2}+\frac{1}{4^2}+\cdots\right)^{-1}\
\
&=&\frac{6}{\pi^2}
\end{eqnarray*}
\end{frame}

\begin{center}
\includegraphics[width=10cm,height=9cm]{logo.jpg}
\end{center}
\end{document}
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