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\documentclass{beamer}
\usepackage[utf8]{inputenc}
\usetheme{AnnArbor}
\title{ASSIGNMENT-2}
\author{\texttt{AYUSHI\\MAT/20/94\\20044563022}}
\date{}
\begin{document}
\begin{frame}
\begin{minipage}{0.13\linewidth}
\includegraphics[width=1.5cm,height=1.5cm]{msc.png}
\end{minipage}\hfill
\begin{minipage}{0.7\linewidth}
\centering \textbf{MATA SUNDRI COLLEGE FOR WOMEN}\\
(UNIVERSITY OF DELHI)
\end{minipage}\hfill
\begin{minipage}{0.13\linewidth}
\includegraphics[width=1.5cm,height=1.5cm]{du.png}
\end{minipage}\hfill
\Large\titlepage
    \end{frame}
\begin{frame}{Page 69-Part 1}
\textbf{1.} Let $x=(x_1,\cdots,x_n),$ where the $x_i$ are nonnegative real numbbers. Set $$M_r(x)={\left(\frac{x_1^r+x_2^r+\cdots+x_n^r}{n}\right)}^\frac{1}{r}, r\in R$$ and $$M_0(x)=(x_1x_2 \cdots x_n)^\frac{1}{n}.$$\\
We call $M_r(x)$ the \emph{rth power mean} of x.\\
Claim:$$ \lim_{r\rightarrow 0} M_r(x)=M_0(x).$$
    \end{frame}
\begin{frame}
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\textbf{2.} Define
$$V_n= \left[\begin{array}{ccccc}
   1  & 1 & 1 & \cdots & 1\\
   x_1&x_2&x_3 & \cdots & x_n\\
   x_1^2&x_2^2&x_3^2 & \cdots & x_n^2\\
   \vdots & \vdots & \vdots & \ddots &
   \vdots \\
   x_1^{n-1} & x_2^{n-1} & x_3^{n-1} &
   \cdots & x_n^{n-1}
\end{array}\right]$$
We call $V_n$ the Vandermonde matrix of
order $n$.\\
Claim:$$ det V_n=\prod_{1\leq i < j \leq
n}(x_j-x_i).$$

\end{frame}

\begin{frame}{QUESTION-4}
\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 $$\sum_{k=1}^n
    k=\frac{n(n+1)}{2}$$
    \item $$\frac{\pi}{4}=\frac{1}{1}-\frac{
    1}{3}+\frac{1}{5}-\frac{1}{7}+\frac{1}{9
    }-\frac{1}{11}+\cdots$$
\end{itemize}
    \end{frame}
\begin{frame}
\begin{itemize}
    \item $$\cos\theta=\sin(90^0-\theta)$$
    \item $$e^{\iota\theta}=\cos\theta+\iota
    \sin\theta$$
    \item $$\lim_{\theta\rightarrow0}\frac{\
    sin\theta}{\theta}=1$$
    \item $$\lim_{x\rightarrow\infty}\frac{\
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55      \item $$\int_{-\infty}^{\infty}e^{-x^2}dx=\sqrt{\pi}$$
56  \end{itemize}
57      \end{frame}
58  \begin{frame}{QUESTION-5}
59  \begin{itemize}
60      \item Positive numbers $a$, $b$ and $c$ are the side lengths of a triangle if and only if $a+b>c$,$b+c>a$ and $c+a>b$.
61      \item The area of a triangle with side lengths $a$,$b$,$c$ is given by Heron's formula: $$A=\sqrt{s(s-a)(s-b)(s-c)}, $$where $s$ is the semiperemeter $(a+b+c)/2$.
62      \item The volume of a regular tetrahedron of edge length $1$ is $\sqrt{2}/12$.
63      \end{itemize}
64      \end{frame}
65  \begin{frame}
66  \begin{itemize}
67      \item The quadratic equation $ax^2+bx+c=0$ has roots $$r_1,r_2=\frac{-b\pm\sqrt{b^2-4ac}}{2a} $$
68      \item The derivative of a function $f$ , denoted $f'$, is defined by $$f'(x)=\lim_{h\rightarrow0}\frac{f(x+h)-f(x)}{h}$$
69      \item a real valued function $f$ is convex on an interval $I$ if $$f(\lambda x +(1-\lambda y)\leq\lambda f(x)+(1-\lambda)f(y),$$ for all $x$,$y$ $\in$ $I$ and $0\leq\lambda\leq1.$
70      \end{itemize}
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71      \end{frame}
72  \begin{frame}
73  \begin{itemize}
74      \item The general solution to the
        differential equation $$y''-3y'+2y=0$$
        is $$y=C_1e^x+C_2e^{2x}.$$
75      \item The Fermat number $F_n$ is defined
        as $$F_n = 2^{2^{n}}, n\geq0.$$
76  \end{itemize}
77      \end{frame}
78  \begin{frame}{QUESTION-6}
79  \begin{itemize}
80      \item $$\frac{d}{dx}\left(\frac{x}{x+1}\
        right)=\frac{1}{(x+1)^2}$$
81      \item $$\lim_{x\rightarrow\infty}\left(1
        +\frac{1}{n}\right)^n=e$$
82      \item $$\left|\begin{array}{cc}
83          a  & b  \\
84           c  & d
85      \end{array}\right|=ad-bc$$
86      \item $$R_\theta=\left[\begin{array}{cc}
87          \cos\theta & -\sin\theta  \\
88           \sin\theta & \cos\theta
89      \end{array}\right]$$
90  \end{itemize}
91      \end{frame}
92  \begin{frame}
93  \begin{itemize}
94      \item$$ \left|\begin{array}{ccc}
95          \textbf{i} & \textbf{j} &
            \textbf{k} \\
96          a_1 & a_2 & a_3\\
97          b_1 & b_2 & b_3
98      \end{array}\right|=\left|\begin{array}{c
        c}
99          a_2  & a_3  \\
100         b_2 & b_3
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101       \end{array}\right|\textbf{i}-\left|\begi
          n{array}{cc}
102          a_1  & a_3  \\
103           b_1 & b_3
104       \end{array}\right|\textbf{j}+
          \left|\begin{array}{cc}
105          a_1  & a_2 \\
106           b_1 & b_2
107       \end{array}\right|\textbf{k}$$
108       \item$$ \left[\begin{array}{cc}
109          a_{11} & a_{12} \\
110           a_{21} & a_{22}
111       \end{array}\right]\left[\begin{array}{cc
          }
112          b_{11} & b_{12} \\
113           b_{21} & b_{22}
114       \end{array}\right]=\left[\begin{array}{c
          c}
115          a_{11}b_{11} + a_{12}b_{12} &
             a_{11}b_{12}+a_{11}b_{22} \\
116           a_{21}b_{11}+a_{22}b_{21} &
              a_{21}b_{11}+a_{22}b_{22}
117       \end{array}\right]$$
118       \item $$f(x)=\left\{\begin{array}{rl}
119           -x^2, & x<0 \\
120           x^2, & 0\leq x \leq 2\\
121            4 , & x>2
122       \end{array}\right.$$
123   \end{itemize}
124       \end{frame}
125   \begin{frame}
126        \begin{eqnarray*}
127        1+2 & = & 3\\
128        4+5+6 & = & 7+8\\
129        9+10+11+12 & = & 13+14+15\\
130        16+17+18+19+20 & = & 21+22+23+24\\
131        25+26+27+28+29+30 & = & 31+32+33+34+35
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132         \end{eqnarray*}
133     \end{frame}
134     \begin{frame}
135         \begin{eqnarray*}
136         (a+b)^2 & = & (a+b)(a+b)\\
137                 & = & (a+b)a+(a+b)b\\
138                 & = & a(a+b)+b(b+a)\\
139                 & = & a^2+ab+ba+b^2\\
140                 & = & a^2+ab+ab+b^2\\
141                 & = & a^2+2ab+b^2
142         \end{eqnarray*}
143     \end{frame}
144     \begin{frame}
145         \begin{eqnarray*}
146         \tan(\alpha+\beta+\gamma) & = &
        \frac{\tan(\alpha+\beta)+\tan\gamma}{1-\
        tan(\alpha+\beta)\tan\gamma} \\
147          & = & \frac{{\frac{\tan\alpha+\tan\beta
         }{1-\tan\alpha\tan\beta}}+\tan\gamma}{1
         -(\frac{\tan\alpha+\tan\beta}{1-\tan\al
         pha\tan\beta})\tan\gamma}\\
148         & = & \frac{\tan\alpha+\tan\beta+(1-\tan
        \alpha+\tan\beta)\tan\gamma}{1-\tan\alph
        a\tan\beta-(\tan\alpha+\tan\beta)\tan\ga
        mma}\\
149         & = & \frac{\tan\alpha+\tan\beta+\tan\ga
        mma-\tan\alpha\tan\beta\tan\gamma}{1-\ta
        n\alpha\tan\beta-\tan\alpha\tan\gamma-\t
        an\beta\tan\gamma}
150         \end{eqnarray*}\\
151     \end{frame}
152     \begin{frame}
153         \begin{eqnarray}
154         \prod_p\left(1-\frac{1}{p^2}\right) & =
        & \prod_p\frac{1}{1+\frac{1}{p^2}+\frac{
        1}{p^4}+\cdots}\\
155         & = & \left(\prod_p\left(1+\frac{1}{p^2}
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156       & = & \left(1+\frac{1}{2^2}+\frac{1}{3^2
          }+\frac{1}{4^2}+\cdots\right)^{-1}\\
157       & = & \frac{6}{\pi^2}
158       \end{eqnarray}
159   \end{frame}
160 ▾ \begin{frame}
161    \includegraphics[width=12cm,height=8cm]{TYY
          .jpeg}
162   \end{frame}
163       \end{document}
164
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