

Source Rich Text

main.tex

thanx1.jpg

File outline

We can't find any sections or subsections in this file.

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1 \documentclass{beamer}
2 \usepackage[utf8]{inputenc}
3 \usepackage{gensymb}
4 \usepackage{xcolor}
5 \usepackage{graphicx}
6 \title{ASSIGNMENT 2}
7 \institute{\large{GARIMA AGARWAL \ \ ROLL NUMBER - 20044563023}}
8 \author{\small{MATA SUNDRI COLLEGE FOR WOMEN\ \ DELHI UNIVERSITY}}
9
10 \date{}
11 \setheme{Warsaw}
12
13 \begin{document}
14 \begin{frame}
15 \titlepage
16 \end{frame}
17
18 \begin{frame}{Examples on Page 69}
19 1) Let  $x=(x_1, x_2, \dots, x_n)$  where the  $x_i$ 's are non negative real numbers. Set  $M_r(x) =$ 
20  $\left(\frac{(x_1^r + x_2^r + \dots + x_n^r)}{n}\right)^{\frac{1}{r}}$ ,  $r \in \mathbb{R} \setminus \{0\}$ , and
21  $M_0(x) = (x_1 x_2 \dots x_n)^{\frac{1}{n}}$ 
22 We call  $M_r(x)$  the  $r$ th power mean of  $x$ .
23 Claim:  $\lim_{r \rightarrow 0} M_r(x) = M_0(x)$ 
24 \end{frame}
25 \begin{frame}{Examples on Page 69}
26 2) Define
27  $V_n = \begin{bmatrix} c & & & \\ & c & & \\ & & \ddots & \\ & & & c \end{bmatrix}$ 
28  $1 \ 1 \ 1 \ \dots \ 1$ 
29  $x_1 \ x_2 \ x_3 \ \dots \ x_n$ 
30  $x_1^2 \ x_2^2 \ x_3^2 \ \dots \ x_n^2$ 
31  $\vdots \ \vdots \ \vdots \ \vdots \ \vdots$ 
32  $x_1^{n-1} \ x_2^{n-1} \ x_3^{n-1} \ \dots \ x_n^{n-1}$ 
33 \end{array}
34 We call  $V_n$  the Vandermonde matrix of order  $n$ .
35 Claim:  $\det V_n = \prod_{1 \leq i < j \leq n} (x_j - x_i)$ 
36 \end{frame}
37
38 \begin{frame}{Q4 Make the following equations}
39 \begin{itemize}
40 \item  $3^3 + 4^3 + 5^3 = 6^3$ 
41 \item  $\sqrt{100} + 10 = 11$ 
42 \item  $(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$ 
43 \item  $\sum_{k=1}^n k = \frac{n(n+1)}{2}$ 
44 \item  $\frac{d}{dx} \ln|x| = \frac{1}{x}$ 
45 \end{itemize}
46 \end{frame}
47
48 \begin{frame}{Q4 make the following equations}
49 \begin{itemize}
50 \item  $\cos(\theta) = \sin(90^\circ - \theta)$ 
51 \item  $e^{i\theta} = \cos(\theta) + i\sin(\theta)$ 
52 \item  $\lim_{\theta \rightarrow 0} \frac{\sin(\theta)}{\theta} = 1$ 
53 \item  $\lim_{x \rightarrow \infty} \frac{1}{x} = 0$ 
54 \item  $\int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi}$ 
55 \end{itemize}
56 \end{frame}
57
58 \begin{frame}{Q5 Typeset the following sequences.}
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 triangle with side lengths  $\{a, b, c\}$  is given by Heron's formula:  $A = \sqrt{s(s-a)(s-b)(s-c)}$ , where  $s = \frac{a+b+c}{2}$ 
62 \item The volume of a regular tetrahedron of edge length 1 is  $\frac{\sqrt{2}}{12}$ 
63 \item The quadratic equation  $ax^2 + bx + c = 0$  has roots  $r_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ 
64 \end{itemize}
65 \end{frame}
66 \end{frame}
67 \end{frame}
68
69 \begin{frame}{Q5 Typeset the following sequences.}
70 \begin{itemize}
71 \item The derivative of a function  $f$ , denoted  $f'$ , is defined by  $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ 
72 \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  $0 \leq \lambda \leq 1$ .
73 \item The general solution to the differential equation  $y'' - 3y' + 2y = 0$  is  $y = C_1 e^{2x} + C_2 e^x$ 
74 \item The Fermat number  $F_n$  is defined as  $F_n = 2^{2^n} + 1$ ,  $n \geq 0$ .
75 \end{itemize}
76 \end{frame}
77 \end{frame}
78
79 \begin{frame}{Q6 Make the following equations. Notice the large delimiters}
80 \begin{itemize}
81 \item  $\frac{d}{dx} (x+1)^2 = 2(x+1)$ 
82 \item  $\lim_{n \rightarrow \infty} (1 + \frac{1}{n})^n = e$ 
83 \item  $\left[ \begin{matrix} c \\ c \end{matrix} \right]$ 
84 \end{itemize}
85 \end{frame}

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81 ▾ \begin{frame}{Q6 Make the following equations. Notice the large delimiters }
82 ▾ \begin{itemize}
83   \item $$ \frac{d}{dx}\left(\frac{x}{x+1}\right) = \frac{1}{(x+1)^2} $$
84   \item $$ \lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = e $$
85   \item $$ \left| \begin{array}{cc}
86     a & b \\
87     c & d \end{array} \right| = ad - bc $$
88   \item $$ R_{\theta} = \left[ \begin{array}{cc}
89     \cos\theta & -\sin\theta \\
90     \sin\theta & \cos\theta \end{array} \right] $$
91 \end{array} \right] $$
92 \end{itemize}
93 \end{frame}
94
95 ▾ \begin{frame}{Q6 Make the following equations. Notice the large delimiters}
96 ▾ \begin{itemize}
97   \item $$ \left| \begin{array}{ccc}
98     \textbf{i} & \textbf{j} & \textbf{k} \\
99     a_1 & a_2 & a_3 \\
100    b_1 & b_2 & b_3 \end{array} \right| = \left| \begin{array}{cc}
101    a_2 & a_3 \\
102    b_2 & b_3 \end{array} \right| \textbf{i} - \left| \begin{array}{cc}
103    a_1 & a_3 \\
104    b_1 & b_3 \end{array} \right| \textbf{j} + \left| \begin{array}{cc}
105    a_1 & a_2 \\
106    b_1 & b_2 \end{array} \right| \textbf{k} $$
107   \item $$ \left[ \begin{array}{cc}
108     a_{11} & a_{12} \\
109     a_{21} & a_{22} \end{array} \right] \left[ \begin{array}{cc}
110     b_{11} & b_{12} \\
111     b_{21} & b_{22} \end{array} \right] = \left[ \begin{array}{cc}
112     a_{11}b_{11} + a_{12}b_{21} & a_{11}b_{12} + a_{12}b_{22} \\
113     a_{21}b_{11} + a_{22}b_{21} & a_{21}b_{12} + a_{22}b_{22} \end{array} \right] $$
114   \item $$ f(x) = \begin{cases} -x^2, & x < 0 \\
115     x^2, & 0 \leq x \leq 2 \\
116     4, & x > 2 \end{cases} $$
117 \end{array} \right] \textbf{k} $$
118 \item $$ \left[ \begin{array}{cc}
119     a_{11} & a_{12} \\
120     a_{21} & a_{22} \end{array} \right] \left[ \begin{array}{cc}
121     b_{11} & b_{12} \\
122     b_{21} & b_{22} \end{array} \right] = \left[ \begin{array}{cc}
123     a_{11}b_{11} + a_{12}b_{21} & a_{11}b_{12} + a_{12}b_{22} \\
124     a_{21}b_{11} + a_{22}b_{21} & a_{21}b_{12} + a_{22}b_{22} \end{array} \right] $$
125 \end{array} \right] \textbf{k} $$
126 \end{itemize}
127 \end{frame}
128 ▾ \begin{frame}{Q7. Make the following multi line equations }
129 ▾ \begin{eqnarray*}
130   1+2&=&3 \\
131   4+5+6&=&7+8 \\
132   9+10+11+12&=&13+14+15 \\
133   16+17+18+19+20&=&21+22+23+24 \\
134   25+26+27+28+29+30&=&31+32+33+34+35
135 \end{eqnarray*}
136 \end{frame}
137 ▾ \begin{frame}{Q7. Make the following multi line equations }
138 ▾ \begin{eqnarray*}
139   (a+b)^2 &=& (a+b)(a+b) \\
140   &=& (a+b)a + (a+b)b \\
141   &=& a(a+b) + b(a+b) \\
142   &=& a^2 + ab + ba + b^2 \\
143   &=& a^2 + ab + ab + b^2 \\
144   &=& a^2 + 2ab + b^2
145 \end{eqnarray*}
146 \end{frame}
147
148 ▾ \begin{frame}{Q7. Make the following multi line equations }

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125 \end{frame}
126
127 \begin{frame}{Q7. Make the following multi line equations }
128 \begin{eqnarray*}
129 1+2&=&3\\
130 4+5+6&=&7+8\\
131 9+10+11+12&=&13+14+15\\
132 16+17+18+19+20&=&21+22+23+24\\
133 25+26+27+28+29+30&=&31+32+33+34+35
134 \end{eqnarray*}
135 \end{frame}
136
137 \begin{frame}{Q7. Make the following multi line equations }
138 \begin{eqnarray*}
139 (a+b)^2&=&(a+b)(a-b)\\
140 &=&(a+b)a+(a+b)b\\
141 &=&a(a+b)+b(a+b)\\
142 &=&a^2+ab+ba+b^2\\
143 &=&a^2+ab+ab+b^2\\
144 &=&a^2+2ab+b^2
145 \end{eqnarray*}
146 \end{frame}
147
148 \begin{frame}{Q7. Make the following multi line equations }
149 \begin{eqnarray*}
150 \tan(\alpha+\beta)&=&\frac{\tan(\alpha)+\tan(\beta)}{1-\tan(\alpha)\tan(\beta)}\\
151 &=&\frac{\frac{\tan(\alpha)+\tan(\beta)}{1-\tan(\alpha)\tan(\beta)}+\tan(\beta)}{1-\frac{\tan(\alpha)+\tan(\beta)}{1-\tan(\alpha)\tan(\beta)}\tan(\beta)}\\
152 &=&\frac{\tan(\alpha)+\tan(\beta)+(1-\tan(\alpha)\tan(\beta))\tan(\beta)}{\tan(\beta)(1-\tan(\alpha)\tan(\beta)-\tan(\alpha)\tan(\beta))}
153 &=&\frac{\tan(\alpha)+\tan(\beta)+\tan(\beta)-\tan(\alpha)\tan(\beta)\tan(\beta)}{\tan(\beta)(1-\tan(\alpha)\tan(\beta)-\tan(\alpha)\tan(\beta))}
154 \end{eqnarray*}
155 \end{frame}
156
157 \begin{frame}{Q7. Make the following multi line equations }
158 \begin{eqnarray*}
159 \prod_p \left(1-\frac{1}{p^2}\right) &=& \prod_p \frac{1}{1+\frac{1}{p^2}+\frac{1}{p^4}+\dots} \\
160 &=& \left(\prod_p \left(1+\frac{1}{p^2}+\frac{1}{p^4}+\dots\right)\right)^{-1} \\
161 &=& \left(1+\frac{1}{2^2}+\frac{1}{3^2}+\frac{1}{4^2}+\dots\right)^{-1} \\
162 &=& \frac{6}{\pi^2}
163 \end{eqnarray*}
164 \end{frame}
165
166 \begin{frame}
167 \begin{center}
168 \includegraphics[width=10cm,height=9cm]{thanx1.jpg}
169 \end{center}
170
171 \end{frame}
172 \end{document}
173
174 \end{document}
175

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