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1 \documentclass{beamer}
2 \usepackage[utf8]{inputenc}
3 \date{}
4 %\maketitle
5 \usetheme{Warsaw}
6 \begin{document}
7 \begin{frame}
8 \begin{block}
9 {MATA SUNDRI COLLEGE FOR WOMEN}
10 \centering
11 Name- HRITHIKA\\
12 College roll no. -MAT/20/117\\
13 University roll no. - 20044563042
14 \end{block}
15 \end{frame}
16 \begin{frame}{Example 9.6}
17 \begin{enumerate}
18 \item Let  $\mathbf{x}=(x_1,\dots,x_n)$ ,
19 where the  $x_i$  are nonnegative real numbers.
20 Set
21 \[
22 M_r(\mathbf{x}) = \left(\frac{x_1^r+x_2^r
23 +\dots+x_n^r}{n}\right)^{1/r},
24 \quad ; \quad r \in \mathbf{R} \setminus \{0\},
25 \]
26 and
27 \[
28 M_0(\mathbf{x})=\left(x_1 x_2 \dots x_n\right)^{1/n}.
29 \]
30 We call  $M_r(\mathbf{x})$  the  $r$ th power mean
31 of  $\mathbf{x}$ .

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33 \[
34 \lim_{r \rightarrow 0} M_r(\mathbf{x}) =
35 M_0(\mathbf{x}).
36 \]
37 \end{enumerate}
38 \end{frame}
39 \begin{frame}{How to use graphics}
40 \begin{enumerate}
41 \item Define
42 \[
43 v_n=
44 \left[
45 \begin{array}{cccc}
46 1 & 1 & 1 & \dots & 1 \\
47 x_1 & x_2 & x_3 & \dots & x_n \\
48 x_1^2 & x_2^2 & x_3^2 & \dots & x_n^2 \\
49 \vdots & \vdots & \vdots & \ddots & \vdots \\
50 x_1^{n-1} & x_2^{n-1} & x_3^{n-1} & \dots & x_n^{n-1}
51 \end{array}
52 \right].
53 \]
54 We call  $v_n$  the Vandermonde matrix of order  $n$ .
55 Claim:
56 \[
57 \det v_n = \prod_{1 \leq i < j \leq n} (x_j - x_i).
58 \]
59 \end{enumerate}
60 \end{frame}
61 \begin{frame}{Question 4}
62 \begin{eqnarray*}
63 & \{3^3+4^3+5^3=6^3\} \\
64 & \{\sqrt{100}=10\} \\
65 & \{(a+b)^3=a^3+3a^2b+3ab^2+b^3\} \\
66 & \sum_{k=1}^n k = \frac{n(n+1)}{2}
\end{eqnarray*}

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65      {(a+b)^3=a^3+3a^2b+3ab^2+b^3} \\
66      \sum_{k=1}^n k=\frac{n(n+1)}{2} \\
67      \frac{\pi}{4}=\frac{1}{1}-\frac{1}{3}+\frac{1}{5}-\frac{1}{7}+\frac{1}{9}-\frac{1}{11}+\cdots
68      \end{eqnarray*}
69  \end{frame}
70

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71  \begin{frame}
72  \begin{eqnarray*}
73      \lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta}=1 \\
74      \lim_{x \rightarrow \infty} \frac{\pi(x)}{x \log(x)}=1 \\
75      \int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi}
76  \end{eqnarray*}
77  \end{frame}

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78  \begin{frame} {Question 5}

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79  \begin{enumerate}

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80  \item Positive numbers a,b,c are the side lengths of a triangle if and only if $ a+b>c , b+c > a , c+a>b$ \\
81  \item The area of a triangle with side lengths a,b,c is given by \emph{Heron's formula}: \\
82  \mathbf{A}=\sqrt{s(s-a)(s-b)(s-c)}, \\
83  where \emph{s} is the semiperimeter (a+b+c)/2.
84  \item The quadratic equation $ax^2+bx+c=0$ has roots $r_1, r_2=\frac{-b \pm \sqrt{b^2-4ac}}{2a}$.

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85  \end{enumerate}

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86  \end{frame}

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87  \begin{frame}

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88  \begin{enumerate}

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89  \item The derivative of a function \emph{f}, denoted \emph{f'}, is defined by. \mathbf{f}'(x)=\lim_{h \rightarrow 0} \frac{f(x+h)-f(x)}{h} \\
90  \item A real-valued function \emph{f} is \emph{convex} on an interval \emph{I} if \mathbf{f}(\lambda x+(1-\lambda)y) \leq \lambda f(x)+(1-\lambda)f(y), \mathbf{for all } x,y \in I \text{ and } 0 \leq \lambda \leq 1. \\
91  \item The general solution to the differential equation $y''-3y'+2y=0$ is $y=C_1e^{\lambda x} +C_2e^{\lambda 2x}$. \\
92  \item The Fermat number $F_n$ is defined as $F_n=2^{2^n}+1$, $n>0$.

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93  \end{enumerate}

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94  \end{frame}

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95
96  \begin{frame}{Question 6}

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97  \begin{itemize}

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92     \item The Fermat number$ F_n$ is defined as $$ F_n=2^{2^n} $$, n>0.
93 \end{enumerate}
94 \end{frame}
95
96 \begin{frame}{Question 6}
97 \begin{itemize}
98     \item \left[\frac{d}{dx}\left(\frac{x}{x+1}\right)=\frac{1}{(x+1)^2}\right]
99     \item \left[\lim_{n \rightarrow}
100 \infty\left(1+\frac{1}{n}\right)^n=e\right]
101     \item
102     \left[\begin{vmatrix}
103 a & b \\
104 c & d \end{vmatrix}=ad-bc\right]
105     \item \left[R_{\theta}=\begin{bmatrix} \cos\theta & \\ -\sin\theta & \end{bmatrix} \cos\theta & \sin\theta & \cos\theta \right]
106     \end{bmatrix}\right]
107     \item \left[\begin{vmatrix}
108 i & j & k \\
109 a_1 & b_2 & a_3 \\
110 b_1 & b_2 & b_3 \end{vmatrix}=
111 \begin{vmatrix}
112 a_2 & a_3 \\
113 b_1 & b_3 \end{vmatrix}-\begin{vmatrix}
114 a_1 & b_3 \\
115 b_1 & b_3 \end{vmatrix}+\begin{vmatrix}
116 a_1 & a_2 \\
117 b_1 & b_2 \end{vmatrix}-\begin{vmatrix}
118 a_1 & a_2 \\
119 b_1 & b_2 \end{vmatrix}\right]
120     \end{vmatrix}\textbf{k}\right]
121     \end{itemize}
122 \end{frame}

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125 \end{frame}
126
127 \begin{frame}
128 \begin{itemize}
129 \item \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} & a_{12} \\ b_{21} & a_{11}b_{12} + a_{12}b_{21} \\ a_{21} & a_{21}b_{11} + a_{22}b_{21} \\ a_{21}b_{12} + a_{22}b_{21} & a_{22}b_{22} \end{bmatrix} \\
130 \item [f(x) = \begin{cases} -x^2, & x < 0 \\ x^2, & 0 \leq x \leq 2 \\ 4, & x > 2 \end{cases}] \\
131 \end{itemize}
132
133 \end{frame}
134
135 \begin{frame}{Question 7(MULTI LINE EQUATIONS)}
136 \begin{block}{1 st part}
137 {1+2 =3 \\
138 4+5+6 =7+8 \\
139 9+10+11+12= 13+14+15 \\
140 16+17+18+19+20= 21+22+23+24 \\
141 25+26+27+28+29+30=31+32+33+34+35} \\
142 \end{block}
143 \end{frame}
144 \begin{frame}
145 \begin{block}{2nd part}
146 {\begin{eqnarray*}
147 (a+b)^2 &=& (a+b)(a+b) \\
148 &=& (a+b)a + (a+b)b \\
149 &=& a(a+b) + b(a+b) \\
150 &=& a^2 + ab + ba + b^2 \\
151 &=& a^2 + ab + ab + b^2 \\
152 &=& a^2 + 2ab + b^2 \\
153 \end{eqnarray*}} \\
154 \end{block}
155 \end{frame}
156 \begin{frame}
157 \begin{block}{3rd part}

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150 &=&a^2+ab+ba+b^2\\
151 &=&a^2+ab+ab+b^2\\
152 &=& a^2+2ab+b^2\\
153 \end{eqnarray*}}
154 \end{block}
155 \end{frame}
156 \begin{frame}
157 \begin{block}{3rd part}
158 {\$tan(\alpha +\beta+\gamma)$=$\frac{tan(\alpha+\beta)+tan\gamma}{1-tan(\alpha+\beta)tan\gamma}$}\\
159 =\left[\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}\right]\\
160 =\left[\frac{tan\alpha+tan\beta+(1-tan\alpha tan\beta)\tan\gamma}{1-tan\alpha tan\beta-(tan\alpha+tan\beta)\tan\gamma}\right]\\
161 =\left[\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}\right]
162 \end{block}
163 \end{frame}
164 \begin{frame}
165 \begin{block}{4th part}
166 { \begin{eqnarray*}
167 \prod_p \left(1-\frac{1}{p^2}\right)&=&\prod_p \frac{1}{1+\frac{1}{p^2}+\frac{1}{p^4}+\cdots}\\
168 &=&\left(\left(\prod_p \left(1+\frac{1}{p^2}+\frac{1}{p^4}+\cdots\right)\right)\right)^{-1}\\
169 &=&\left(1+\frac{1}{2^2}+\frac{1}{3^2}+\frac{1}{4^2}+\cdots\right)^{-1}\\
170 &=&\frac{6}{\pi^2}
171 \end{eqnarray*}}
172 \end{block}
173 \end{frame}
174
175 \end{document}

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