Add comment

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\documentclass[10pt]{beamer}
\usepackage[utf8]{inputenc}


\title{Assignment 2}
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University of Delhi}
\date{}
\usetheme{Copenhagen}

\begin{document}
\begin{frame}
\begin{minipage}{0.13\textwidth}
\includegraphics[width=2cm,height=2cm]{MSCW logo.png}
\end{minipage}\hfill
\begin{minipage}{0.13\textwidth}
\includegraphics[width=2.5cm,height=2cm]{80759944.jpg}
\end{minipage}
 \maketitle
\end{frame}
\setbeamertemplate{background}{\includegraphics[width=\paperwidth,height=\paperheight]{background 2.jpg}}
\begin{frame}{Example}
\begin{block}


Let $\mathbf{x}=(x_1,\ldots,x_n)$
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        where the $x_i$ are non negative real numbers.
        Set
        \[M_r(\mathbf{x})=\left(\frac{x_1^r+x_2^r+\cdots+x_n^r}{n}\right)^{1/r},\;\; r \in \mathbf{R} \setminus \{0\},\]
        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{block}
\end{frame}
\begin{frame}
    \begin{block}

        Define
        \[V_n=
        \left[\begin{array}{ccccc}
        1 & 1 & 1 & \ldots & 1 \\
        x_1 & x_2 & x_3 & \ldots & x_n \\
        x_1^2 & x_2^2 & x_3^2 & \ldots & x_n^2 \\
        \vdots & \vdots & \vdots & \ddots & \vdots\\
        x_1^{n-1} & x_2^{n-1} & x_3^{n-1} & \ldots & x_n^{n-1} \\
        \end{array}\right]\]
        We call $V_n$ the \emph{Vandermonde matrix} of order $n$.\\
        Claim:\[\det V_n = \prod_{1 \leq i < j \leq n}(x_j-x_i).\]
        \end{block}
\end{frame}
\begin{frame}{Question 4.}
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\begin{block}
    \item  $$3^3 + 4^3 + 5^3=6^3$$
\end{block}
\begin{block}
      \item $$\sqrt{100} = 10$$
\end{block}
\begin{block}
    \item \[(a+b)^3=a^3+3a^2b+3ab^2+b^3\]
\end{block}
\begin{block}
      \item \[\sum_{k=1}^{n}k=\frac{n(n+1)}{2}\]
\end{block}
\begin{block}
\item \[\frac{\pi}{4}=\frac{1}{1}-\frac{1}{3}+\
{1}{5}-\frac{1}{7}+\frac{1}{9}-\frac{1}{11}+\ld
]
\end{block}
\end{frame}
\begin{frame}{Remaining Parts of Question 4}
\begin{block}
      \item \[cos\theta=sin(90^\circ-\theta)\]
\end{block}
 \begin{block}
      \item\[e^{i\theta} = cos\theta + is in\the
\end{block}
 \begin{block}
      \item  \[\lim_{\theta\rightarrow 0}\frac{s
      \theta}{\theta}=1.\]
\end{block}
 \begin{block}
      \item  \[\lim_{x\rightarrow\infty}
      \frac{\pi(x)}{x/log x}=1\]
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\end{block}
\begin{block}

 \item  \[\int_{-\infty}^{\infty}e^{-x^2}\,dx=\sqrt
 {\pi}\]
 \end{block}
\end{frame}
\begin{frame}{Question 5}
    \begin{block}

    \item Positive numbers a, b, and c are the side
    lengths of a triangle if and only if $a + b >
    c, b + c > a, and\;\;c + a > b.$\\
  \end{block}
  \begin{block}

    \item The area of a triangle with side lengths
    a, b , and c is given by Heron's formula:
\[A=\sqrt{s(s-a)(s-b)(s-c)},\]
   where s is the semiperimeter (a+b+c)/2.\\
   \end{block}
\begin{block}

   \item The volume of a regular tetrahedron of
   edge length 1 is $\sqrt{2}/12$.\\
   \end{block}
   \end{frame}

\begin{frame}{Remaining Parts of Question 5}
\begin{block}

   \item The quadratic equation $ax^2 +bx +c=0$ has
              roots
    \[r_{1},r_{2}=\frac{-b\pm \sqrt{b^2-4ac}}{2a}\]
    \end{block}
\begin{block}

    The derivative of a function f, denoted f', is
    defined by
    \[f'(x)=\lim_{h\rightarrow 0}
    \frac{f(x+h)-f(x)}{h}\]
    \end{block}
    \begin{block}
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        A real valued function f is convex on an interval I if
        \[f(\lambda x+(1-\lambda)y)\le\lambda f(x)+(1-\lambda)\;f(y),\] for all \(x,y\in I\;\;   and\;\;0 \leq \lambda \leq 1.\)\\
\end{block}
\end{frame}

\begin{frame}{Remaining Parts of Question 5}
\begin{block}

        The general solution to the differential equation
        \[y"-3y'+2y=0\]is
        \[y=C_{1}e^x+C_{2}e^{2x}\]
        \end{block}
        \begin{block}

            The Fermat number $F_{n}$ is defined as\\
        \[F_{n}=2^{2^{n}}, n\ge 0.\]
        \end{block}
\end{frame}
\begin{frame}{Question 6}
\begin{block}

        \[\frac{d}{dx}\left(\frac{x}{x+1}\right)=\frac{1}{(x+1)^2}\]
\end{block}
\begin{block}

        \[\lim_{n \rightarrow\infty}\left(1+\frac{1}{n}\right)^n=e\]
\end{block}
\begin{block}

        \[\begin{vmatrix}
            a & b\\
            c & d\\
            \end{vmatrix} = ad-bc\]
\end{block}
\begin{block}
```

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    \[R_\theta
    =\left[\begin{array}{cc}
     \cos \theta     & -\sin \theta \\
     \sin \theta   & \cos \theta
    \end{array}
    \right]
    \]
\end{block}
\end{frame}
\begin{frame}{Remaining Parts of Question 6}
\begin{block}

   \item\[\begin{vmatrix} \textbf{i}& \textbf{j} & \textbf{k}\\
    a_1 & a_2 & a_3\\ b_1 & b_2 & b_3 \end{vmatrix} = \begin{vmatrix}   a_2 & a_3\\  b_2 & b_3 \end{vmatrix} \textbf{i} - \begin{vmatrix}  a_1 & a_3\\  b_1 & b_3 \end{vmatrix} \textbf{j} + \begin{vmatrix}  a_1 & a_2\\  b_1 & b_2 \end{vmatrix} \textbf{k} \]
\end{block}
\begin{block}

    \item\[\begin{bmatrix} a_{11} & a_{12}\\ a_{21} & a_{22}
    \end{bmatrix}
    \begin{bmatrix} b_{11} & b_{12}\\ b_{21} & b_{22}
    \end{bmatrix} =
    \begin{bmatrix}
    a_{11}b_{11} + a_{12}b_{22} & a_{11}b_{12} +a_{12}b_{22}\\
    a_{21}b_{11} + a_{22}b_{21} & a_{21}b_{12} + a_{22}b_{22}
    \end{bmatrix}\]
\end{block}
\begin{block}

    \item \[f(x) = \begin{cases}
     -x^2,   & x < 0\\
     x^2 ,& 0\leq x \leq2\\
     4, & x >2
    \end{cases}\]
\end{block}
\end{frame}
\begin{frame}{Question 7 Part 1}
\begin{block}
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 \begin{align*}
    1+2 \quad & =\quad 3\\
    4+5+6 \quad & =\quad 7+8\\
    9+10+11+12 \quad & =\quad 13+14+15\\
    16+17+18+19+20 \quad & =\quad 21+22+23+24\\
    25+26+27+28+29+30 \quad & =\quad 31+32+33+34+35\\
\end{align*}
\end{block}
\end{frame}
\begin{frame}{Part 2}
\begin{block}

\begin{align*}
    (a+b)^2 \quad & = \quad (a+b)(a+b)\\
    &= \quad (a+b)a + (a+b)b\\
    &= \quad a(a+b) + b(a+b)\\
    &= \quad a^2+ab+ba+b^2\\
    &= \quad a^2+ab+ab+b^2\\
    &= \quad a^2+2ab+b^2\\
\end{align*}
\end{block}
\end{frame}
\begin{frame}{Part 3}
\begin{block}

\begin{align*}
\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\alpha\tan\gamma-\tan\beta\tan\gamma}
\end{align*}
\end{block}
\end{frame}
\begin{frame}{Part 4}
\begin{block}

\begin{eqnarray*}
\prod_p\left(1-\frac{1}{p^2}\right)&=&\prod_p\frac{1}{1+\frac{1}{p^2}+\frac{1}{p^4}+\cdots}\\
&=&\left(\prod_p\left(1+\frac{1}{p^2}+\frac{1}{p^4}+\cdots\right)\right)^{-1}\\
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&=&\left(\prod_p\left(1+\frac{1}{p^2}+\frac{1}{p^4}+\cdots\right)\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{block}
    \end{frame}
    \setbeamertemplate{background}{\includegraphics[width=\paperwidth,height=\paperheight]{thankyou.jpg}}
\begin{frame}

\end{frame}
    \end{document}
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