TeX code compiled with \documentclass{beamer} using the Amsterdam theme.

\begin{document} \begin{frame} Find the linearization of each function: \vskip 5pt \begin{itemize} \item[\bf a)] $h(x) = x^4-3x^2-1$ at $a=-1$. \vskip 20pt \item[\bf b)] $f(x)=\sin^2(x)$ at $a=\frac{\pi}{2}$. \vskip 20pt \item[\bf c)] $g(x) = \dfrac{1}{(1+3x)^4}$ at $a=0$. \vskip 20pt \item[\bf d)] $r(t) = t^{\frac{3}{4}}$ at $a=16$. \end{itemize} \end{frame} \begin{frame} \large Use a linear approximation to estimate the value of $\sqrt[3]{9}$. \vskip 30pt Use a linear approximation to estimate the value of $\tan(44^o)$. \end{frame} \begin{frame} \large The line tangent to the graph of $f(x)=\sin(x)$ at the point $(0,0)$ is $y=x$. This implies that \vskip 10pt \begin{enumerate}[a)] \item $\sin(0.0005) \approx 0.0005$ \vskip 10pt \item The line $y=x$ touches the graph of $f(x)=\sin(x)$ at exactly one point, $(0,0)$. \vskip 10pt \item $y=x$ is the best straight line approximation to the graph of f for all x. \end{enumerate} \end{frame} \begin{frame} \large Peeling an orange changes its volume V. What does ΔV represent? \vskip 10pt \begin{enumerate}[a)] \item the volume of the rind. \vskip 10pt \item the surface area of the orange. \vskip 10pt \item the volume of the "edible part" of the orange. \vskip 10pt \item $-1\times $(the volume of the rind). \end{enumerate} \end{frame} \begin{frame} \large Imagine that you increase the dimensions of a square with side x_1 to a square with side length x_2. The change in the area of the square, ΔA, is approximated by the differential dA. Find dA: \vskip 10pt \begin{enumerate}[a)] \item $2x_1(x_2-x_1)$ \vskip 10pt \item $2x_2(x_2-x_1)$ \vskip 10pt \item $x_1^2-x_2^2$ \vskip 10pt \item $(x_2-x_1)^2$ \end{enumerate} \end{frame} \begin{frame} \large Imagine that you increase the dimensions of a square with side x_1 to a square with side length x_2. The change in the area of the square, ΔA, is approximated by the differential $$dA=2x_1(x_2-x_1)$$ This approximation will result in an \vskip 5pt \begin{enumerate}[a)] \item overestimate \vskip 10pt \item underestimate \vskip 10pt \item exactly equal \end{enumerate} \end{frame} \begin{frame} Find the differential of each function: \begin{columns} \begin{column}{0.5\textwidth} \begin{itemize} \item[\bf a)] $y=\sqrt{1+x^2}$ \vskip 20pt \item[\bf b)] $y=x^2\sin(x)$ \end{itemize} \end{column} \begin{column}{0.5\textwidth} \begin{itemize} \item[\bf c)] $y=\sec\left(\sqrt{7x}\right)$ \vskip 20pt \item[\bf d)] $y=\dfrac{3-t^2}{3+t^2}$ \end{itemize} \end{column} \end{columns} \end{frame} \begin{frame} \large The radius of a sphere is measured to be 84 inches with a possible error of 0.5 inches. \begin{itemize} \item[\bf a)] Use differentials to estimate the maximum error in the calculated surface area. What is the relative error? \vskip 20pt \item[\bf b)] Use differentials to estimate the maximum error in the calculated volume. What is the relative error? \end{itemize} \end{frame} \begin{frame} \large Use differentials to estimate the amount of paint needed to apply a coat of paint 0.1 cm thick to hemispherical dome with diameter 50 meters. \end{frame} \begin{frame} \large A window has the shape of a square surmounted by a semicircle. \vskip 15pt The base of the window is measured as having width 50 inches with a possible error in measurement of 0.1 inches. \vskip 15pt Use differentials to estimate the maximum error possible in computing the area of the window. What is the maximum relative error? \end{frame} \end{document}