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

\begin{document} \begin{frame} \large Peeling an orange changes its volume V. What does \$\Delta V\$ 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, \$\Delta A\$, 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, \$\Delta A\$, 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} $\left(0.5\text{\ column} \{0.5\text{\ column} \} \right) \$ $y=\d{rac}{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} \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}

From:

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Permanent link:

 $https://www2.math.binghamton.edu/p/calculus/resources/calculus_flipped_resources/applications/differentials_tex.html.pdf.$

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