

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

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\begin{document} \begin{frame} If $f(x) = \frac{x^2 - 4}{x - 2}$ and $g(x) = x + 2$, then we can say the functions $f$ and $g$ are equal. \end{frame} \begin{frame} \Large $\lim_{x \rightarrow 2} f(x) = 4$ \hskip 10pt $\lim_{x \rightarrow 2} g(x) = -2$ \hskip 10pt $\lim_{x \rightarrow 2} h(x) = 0$ Find the limits, if they exist: \begin{columns} \begin{column}{0.5\textwidth} \begin{enumerate} \item[\bf (a)] $\lim_{x \rightarrow 2} [f(x) + 5g(x)]$ \vskip 30pt \item[\bf (b)] $\lim_{x \rightarrow 2} [g(x)]^3$ \vskip 30pt \item[\bf (c)] $\lim_{x \rightarrow 2} \frac{1}{4f(x)}$ \end{enumerate} \end{column} \begin{column}{0.5\textwidth} \begin{enumerate} \item[\bf (d)] $\lim_{x \rightarrow 2} 4f(x)g(x)$ \vskip 30pt \item[\bf (e)] $\lim_{x \rightarrow 2} \frac{g(x)h(x)}{f(x)}$ \end{enumerate} \end{column} \end{columns} \begin{frame} \LARGE \begin{columns} \begin{column}{0.5\textwidth} $\lim_{x \rightarrow 1} \frac{x^2 - 4x + 3}{x - 1}$ \vskip 20pt $\lim_{h \rightarrow 0} \frac{(-4+h)^2 - 16}{h}$ \vskip 20pt $\lim_{x \rightarrow -4} \frac{1/4 + 1/x}{4+x}$ \vskip 20pt $\lim_{x \rightarrow 0} \frac{\sqrt{9+h} - 3}{h}$ \vskip 20pt $\lim_{x \rightarrow -4} \frac{9}{t^2 + t}$ \end{column} \begin{column}{0.5\textwidth} \begin{block} \begin{center} \LARGE \textbf{True} or \textbf{False}. \end{center} \end{block} \end{column} \end{columns} \begin{frame} Consider a function $f(x)$ with the property that $\lim_{x \rightarrow a} f(x) = 0$. Now consider another function $g(x)$ also defined near $a$. Then $\lim_{x \rightarrow a} g(x) = 0$ and $\lim_{x \rightarrow a} g(x) = \infty$, then $\lim_{x \rightarrow a} [f(x) - g(x)] = 0$ and $\lim_{x \rightarrow a} [f(x) - g(x)] = \infty$. \end{frame} \begin{frame} \Large Find the following limits. \vskip 15pt $\lim_{x \rightarrow -3} \frac{4x+12}{|x+3|}$ \vskip 15pt If $2x - 2 \leq f(x) \leq x^2 - 2x + 2$ for $x \geq 0$, find $\lim_{x \rightarrow 2} f(x)$. \end{frame} \begin{frame} Consider the function \[f(x) = \begin{cases} x^2 & \text{if } x \text{ is rational, } x \neq 0 \\ -x^2 & \text{if } x \text{ is irrational} \\ \text{undefined} & \text{if } x = 0 \end{cases}\] Then there is no $a$ for which $\lim_{x \rightarrow a} f(x)$ exists. \end{frame} \begin{frame} There may be some $a$ for which $\lim_{x \rightarrow a} f(x)$ exists, but it is impossible to say without more information. \end{frame} \begin{frame} $\lim_{x \rightarrow a} f(x)$ exists only when $a = 0$. \end{frame} \end{frame} \end{document}
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From:

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Permanent link:

http://www2.math.binghamton.edu/p/calculus/resources/calculus_flipped_resources/limits/1.6_limit_laws_tex

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