

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

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\begin{document} \begin{frame} The cost (in dollars) of producing  $x$  units of a certain commodity is  $C(x) = 5000 + 6x + 0.05x^2$ . \vskip 40pt Find the average rate of change of  $C$  with respect to  $x$  when the production level is changed from  $x = 100$  to the given value: (Round your answers to the nearest cent.) \begin{enumerate} \item  $x = 103$  \item  $x = 101$  \end{enumerate} \end{frame} \begin{frame} \Large Each limit below represents the derivative of some function  $f$  at some number  $a$ , find them. \vskip 15pt \LARGE \begin{enumerate}[a)] \item  $\lim_{h \rightarrow 0} \frac{(16+h)^{1/4} - 2}{h}$  \vskip 15pt \item  $\lim_{x \rightarrow \pi/4} \frac{\tan(x) - 1}{x - \pi/4}$  \vskip 15pt \item  $\lim_{t \rightarrow 1} \frac{t^5 + t - 2}{t - 1}$  \vskip 15pt \end{enumerate} \end{frame} \begin{frame} The number of gallons of water in a tank  $t$  minutes after the tank has started to drain is  $Q(t) = 200(30 - t)^2$ . \begin{enumerate} \item \begin{enumerate} \item What is the average rate at which the water flows out during the first ten minutes? \item during the five minutes from  $t = 5$  to  $t = 10$ ? \item during the two minutes from  $t = 8$  to  $t = 10$ ? \item during the minute from  $t = 9$  to  $t = 10$ ? \end{enumerate} \item Estimate how fast the water is running out of the tank at the end of ten minutes. \item Draw a graph of the function  $Q$  for  $0 \leq t \leq 20$ . Draw the secant lines for the four time intervals used in part a). What are their slopes? \end{enumerate} \end{frame} \begin{frame} \Large The cost (in dollars) of producing  $x$  units of a certain commodity is  $C(x) = x^2 - 2x + 10$ . \vskip 10pt \begin{enumerate}[a)] \item Find the average rate of change of  $C$  with respect to  $x$  when the production level is changed from  $x = 5$  to  $x = 7$  and for the change from  $x = 5$  to  $x = 6$ . \vskip 15pt \item Find the instantaneous rate of change of  $C$  with respect to  $x$  when  $x = 5$ . \end{enumerate} \end{frame} \end{document}

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Permanent link:
https://www2.math.binghamton.edu/p/calculus/resources/calculus_flipped_resources/limits/1.4-2.1_rates_of_change_tex

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