

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

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\begin{document} \begin{frame} \begin{block}{} \begin{center} {\LARGE {\bf True} or {\bf False}}
\end{center} \end{block} \vskip 30pt If  $f$  is continuous on the interval  $[a,b]$ , then  $\int_a^b f(x)dx$  is a number. \end{frame} \begin{frame} Find each of the following derivatives, or specify that you don't
have enough information to do so. \begin{enumerate}[a] \item  $\frac{d}{dx}\int_3^8 f(x)dx$  \item
 $\frac{d}{dx}\int_3^x f(t)dt$  \item  $\frac{d}{dx}\int_x^3 f(t)dt$  \item  $\frac{d}{dx}\int f(x)dx$ 
\end{enumerate} \end{frame} \begin{frame} If  $w'(t)$  is the rate of growth of a child in pounds per year, what
does  $\int_5^{11} w'(t)dt$  represent? \vskip 10pt \begin{enumerate}[a] \item The child's initial
weight at birth. \item The decrease in the child's weight (in pounds) between the ages of 5 and 11. \item The child's
weight at age 5. \item The increase in the child's weight (in pounds) between the ages of 5 and 11. \item The child's
weight at age 11. \end{enumerate} \end{frame} \begin{frame} The current in a wire is defined as the derivative of
the charge  $I(t) = Q'(t)$  What does  $\int_a^b I(t)dt$  represent? \vskip 10pt \begin{enumerate}[a]
\item  $I$  represents the change in the current  $I$  from time  $t=a$  to  $t=b$ . \item It represents the charge  $Q$  at
time  $t=b$ . \item It represents the current  $I$  at time  $t=b$ . \item It represents the charge  $Q$  at time  $t=a$ .
\item It represents the change in the charge  $Q$  from time  $t=a$  to  $t=b$ . \end{enumerate} \end{frame}
\begin{frame} Find the general indefinite integral.  $\int (8\sqrt{x^3}+9\sqrt{3}\{x^2\})dx$  \vskip 75pt Find the
particular indefinite integral of  $\int (8\sqrt{x^3}+9\sqrt{3}\{x^2\})dx$  whose value at  $x=0$  is  $\$4$ .
\end{frame} \begin{frame} Find the general indefinite integrals, and evaluate the definite integrals.
\begin{columns} \begin{column}{0.5\textwidth} \begin{itemize} \item[\bf (i)]  $\int 7v(v^2 +
8)^2dv$  \vskip 20pt \item[\bf (ii)]  $\int_0^2 (6x-3)(4x^2+9)dx$  \vskip 20pt \item[\bf (iii)]
 $\int_0^2 (6x-3)(4x^2+9)dx$  \end{itemize} \end{column} \begin{column}{0.5\textwidth}
\begin{itemize} \item[\bf (iv)]  $\int_9^{16} \frac{3x-3}{\sqrt{x}}dx$  \vskip 20pt \item[\bf (v)]
 $\int_1^4 \sqrt{t}(5+7t)dt$  \vskip 20pt \item[\bf (vi)]  $\int_{-1}^2 (x-6|x|)dx$ 
\end{itemize} \end{column} \end{columns} \end{frame} \begin{frame} Find the indefinite integrals and evaluate
the definite integrals. \begin{columns} \begin{column}{0.5\textwidth} \begin{itemize} \item[\bf (i)]
 $\int 7(1+\tan^2(\alpha))d\alpha$  \vskip 20pt \item[\bf (ii)]  $\int
5\frac{\sin(2x)}{\sin(x)}dx$  \vskip 20pt \item[\bf (iii)]  $\int_0^\pi (4\sin(\theta)-
17\cos(\theta))d\theta$  \end{itemize} \end{column} \begin{column}{0.5\textwidth} \begin{itemize} \item[\bf
(iv)]  $\int_0^{\frac{\pi}{4}} \frac{2+3\cos^2(\theta)}{\cos^2(\theta)}d\theta$  \vskip 20pt \item[\bf
(v)]  $\int_0^{\frac{2\pi}{3}} \frac{7\sin(\theta)(1+\tan^2(\theta))}{\sec^2(\theta)}d\theta$  \vskip
20pt \item[\bf (vi)]  $\int_0^{\frac{3\pi}{2}} 5|\sin(x)|dx$  \end{itemize} \end{column}
\end{columns} \end{frame} \begin{frame} The velocity function (in meters per second) for a particle moving along
a line is  $v(t) = 3t - 8$  \begin{enumerate}[a] \item Find the displacement. \item Find the distance traveled from
time  $t=0$  to time  $t=4$ . \end{enumerate} \vskip 60pt A particle is moving along a line so that its acceleration at
time  $t$  is  $a(t) = 2t + 2$  and its initial velocity is  $v(0)=-3$ . \begin{enumerate}[a] \item Find the velocity at
time  $t$ . \item Find the distance traveled from time  $t=0$  to time  $t=4$ . \end{enumerate} \end{frame}
\begin{frame} Water flows from the bottom of a storage tank at a rate of  $r(t) = 400 - 8t$  liters per minute. Find
the amount of water that flows from the tank during the first 30 minutes. \vskip 80pt Sketch the region bounded by
the  $y$ -axis, the line  $y=4$ , and the curve  $y=4\sqrt[4]{x}$ . Find the area of this region in two ways:
\begin{enumerate}[a] \item by integrating an appropriate function of  $x$ , and \item by writing  $x$  as a function of
 $y$  and integrating with respect to  $y$ . \end{enumerate} \end{frame} \end{document}

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From: <https://www2.math.binghamton.edu/> - Department of Mathematics and Statistics, Binghamton University

Permanent link: https://www2.math.binghamton.edu/p/calculus/resources/calculus_flipped_resources/applications/4.4_indefinite_integrals_text

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