

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

There is one png image needed to compile slides:

antiderivative.png

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\begin{document} \begin{frame} \begin{center} Which function from  $\{a,b,c\}$  is an antiderivative of  $f$ ?
\end{center} \begin{center} \includegraphics[height=190pt]{antiderivative.png} \end{center} \end{frame}
\begin{frame} \begin{block}{} \begin{center} {\LARGE {\bf True} or {\bf False}} \end{center} \end{block} \vskip
15pt An antiderivative of a sum of functions,  $f+g$ , is an antiderivative of  $f$  plus an antiderivative of  $g$ . \vskip
20pt An antiderivative of a product of functions,  $fg$ , is an antiderivative of  $f$  times an antiderivative of  $g$ .
\end{frame} \begin{frame} Suppose you are told that the acceleration function of an object is a continuous
function  $a(t)$ . Let's say you are given that  $v(0)=1$ . \vskip 20pt \begin{block}{} \begin{center} {\LARGE {\bf
True} or {\bf False}} \end{center} \end{block} \vskip 15pt You can find the position of the object at any time  $t$ .
\end{frame} \begin{frame} Find the most general antiderivative of each function. \vskip 5pt \begin{itemize}
\item[{\bf (i)}]  $f(x)=\frac{1}{2}x^2-2x+6$  \vskip 15pt \item[{\bf (ii)}]  $g(x)=(x+5)(2x-6)$  \vskip 15pt \item[{\bf (iii)}]
 $h(x)=\frac{3+t+t^2}{\sqrt{t}}$  \end{itemize} \end{frame} \begin{frame} Let  $f$  be a function so that
 $f'(x)=12x+\sin(x)$ . \vskip 5pt \begin{itemize} \item[{\bf (i)}] If you know nothing else about  $f$ , give the best
formula you can for  $f$ . \vskip 15pt \item[{\bf (ii)}] If you know  $f'(\pi)=1$ , give the best formula you can for  $f$ .
\vskip 15pt \item[{\bf (iii)}] If you know  $f'(\pi)=1$ , and  $f(\pi)=0$ , give the best formula you can for  $f$ .
\end{itemize} \end{frame} \begin{frame} Find  $f$  if  $f'(\theta)=\sin(\theta)+\cos(\theta)$ ,  $f(0)=3$ , and
 $f'(0)=3$ . \vskip 100pt Find  $f$  if  $f'''(x)=\cos(x)$ ,  $f(0)=5$ ,  $f'(0)=1$ , and  $f''(0)=8$ . \end{frame} \begin{frame}
 $f(x)=\frac{1}{x^2}$  If  $F(x)$  is an antiderivative of  $f$  with the property  $F(1)=1$ . \vskip 15pt
\begin{block}{} \begin{center} {\LARGE {\bf True} or {\bf False}} \end{center} \end{block} \vskip 10pt  $F(-
1)=3$  \end{frame} \begin{frame} Find a function  $f$  such that  $f'(x)=2x^3$  and the line  $2x+y$  is tangent to
the graph of  $f$ . \vskip 100pt In each of the following, a particle is moving with the given data. Find the position
function of the particle. \begin{enumerate}[a] \item  $v(t)=1.5\sqrt{t}$ ,  $s(16)=67$ . \item  $a(t)=2t+5$ ,  $s(0)=2$ ,
 $v(0)=-5$ . \end{enumerate} \end{frame} \begin{frame} A stone was dropped off a cliff and hit the ground with a
speed of 112 ft/s. What is the height of the cliff? (Use  $32 \text{ ft/s}^2$  for the acceleration due to gravity.)
\vskip 100pt What constant acceleration is required to increase the speed of a car from 25 mi/h to 53 mi/h in 3 s?
\end{frame} \begin{frame} If a diver of mass  $m$  stands at the end of a diving board with length  $L$  and linear
density  $\rho$ , then the board takes on the shape of a curve  $y = f(x)$ , where  $Ey'' = mg(L - x) +
\frac{1}{2}\rho g(L - x)^2$ .  $E$  and  $g$  are positive constants that depend on the material of the board and  $g$ 
( $< 0$ ) is the acceleration due to gravity. \begin{enumerate}[a] \item Find an expression for the shape of the
curve. \item Use  $f(L)$  to estimate the distance below the horizontal at the end of the board. \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/3.9_antiderivatives_tex

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