Antiderivatives

Basic Antiderivatives

Use the Memory Practice Log to cover up the right side of the table. Remember that you can always check by taking the derivative of the right column and see if you get the function in the left column!

Note: c is any constant. a is any positive constant.

$\int c\,dx =$	$cx + C$
$\int x^n\,dx =$	$\frac{x^{n+1}}{n+1} + C$
$\int \sin x\,dx =$	$-\cos x + C$
$\int \cos x\,dx =$	$\sin x + C$
$\int \sec^2 x\,dx =$	$\tan x + C$
$\int \sec x \tan x\,dx =$	$\sec x + C$
$\int \csc^2 x\,dx =$	$-\cot x + C$
$\int \csc x \cot x\,dx =$	$-\csc x + C$
$\int e^x\,dx =$	$e^x + C$
$\int a^x\,dx =$	$\frac{a^x}{\ln a} + C$
$\int \frac{1}{x}dx =$	$\ln\lvert x\rvert + C$
$\int \frac{1}{\sqrt{1-x^2}}dx =$	$\sin^{-1} x + C$
$\int \frac{1}{1+x^2}dx =$	$\tan^{-1} x + C$

Other Antiderivative Properties

Use the Memory Practice Log to cover up the right side of the table.

$\frac{d}{dx}\left(\int f(x)\,dx\right) =$	$f(x)$
$\int \frac{d}{dx}\big(f(x)\big)\,dx =$	$f(x) + C$

Antiderivative Practice

Use the Memory Practice Log to cover up the right side of the table. The goal for this table is more about practice than it is about memorization.

$\int \frac{1}{x^2}\,dx =$	$-\frac{1}{x} + C$
$\int \sqrt{x}\,dx =$	$\frac{2}{3}x^{3/2} + C$
$\int e^{3x}\,dx =$	$\frac{1}{3}e^{3x} + C$
$\int \cos 5x\,dx =$	$\frac{1}{5}\sin 5x + C$
$\int \sec 4x \tan 4x\,dx =$	$\frac{1}{4}\sec 4x + C$
$\int \frac{6}{x}\,dx =$	$6\ln\lvert x\rvert + C$
$\int \frac{1}{x+3}\,dx =$	$\ln\lvert x+3\rvert + C$
$\int \frac{1}{2x+5}\,dx$	$\frac{1}{2}\ln\lvert 2x+5\rvert + C$