Table of common antiderivatives:

Function	Particular antiderivative	Function	Particular antiderivative
$cf(x)$	$cF(x)$	$\sin x$	$-\cos x$
$f(x)+g(x)$	$F(x)+G(x)$	$\sec^2 x$	$\tan x$
$x^n (n \neq 1)$	$\frac{x^{n+1}}{n+1}$	$\sec x \tan x$	$\sec x$
$\frac{1}{x}$	$\ln \lvert x \rvert$	$\frac{1}{\sqrt{1-x^2}}$	$\sin^{-1} x$
e^x	e^x	$\frac{1}{1+x^2}$	$\tan^{-1} x$

Fundamental Theorem of Calculus:

(i) Suppose f is continuous on $[a,b]$ and differentiable on (a,b). If $g(x) = \int_a^x f(t)\,dt$, then

$$g'(x) = f(x)$$

for all $x \in (a,b)$.

(ii) Suppose F is an antiderivative of f, and f is continuous on $[a,b]$ and differentiable on (a,b). Then

$$\int_a^b f(x)\,dx = F(b) - F(a).$$