

Reverse Chain Rule

$$\int g'(x) * f'(g(x))dx = f(g(x)) + C$$

$$\int \frac{dx}{x} = \int \frac{1}{x} dx = \int x^{-1} dx = \ln|x| + C$$

$$\int e^x dx = e^x + C$$

$$\int a^x dx = \frac{1}{\ln a} a^x + C$$

$$\int \tan x dx = -\ln|\cos x| + C$$

$$\int \cot x dx = \ln|\sin x| + C$$

$$\int \sec x dx = \ln|\sec x + \tan x| + C$$

$$\int \csc x dx = -\ln|\csc x + \cot x| + C$$

$$\int \frac{1}{\sqrt{a^2 - x^2}} dx = \arcsin \frac{x}{a} + C$$

$$\int \frac{1}{a^2 + x^2} dx = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{1}{x\sqrt{x^2 - a^2}} dx = \frac{1}{a} \operatorname{arcsec} \frac{|x|}{a} + C$$