

Integral Formulas

$$1: \int x^n dx = \frac{x^{n+1}}{n+1} + C \quad (n \neq -1)$$

$$2: \int \frac{1}{x} dx = \log|x| + C$$

$$3: \int e^x dx = e^x + C$$

$$4: \int a^x dx = \frac{dx}{\log_e a} + C$$

$$5: \int \sin x dx = -\cos x + C$$

$$6: \int \cos x dx = \sin x + C$$

$$7: \int \sec^2 x dx = \tan x + C$$

$$8: \int \operatorname{cosec}^2 x dx = -\cot x + C$$

$$9: \int \sec x \tan x = \sec x + C$$

$$10: \int \operatorname{cosec} x \cot x dx = -\operatorname{cosec} x + C$$

$$11: \int \frac{1}{\sqrt{1-x^2}} dx = \sin^{-1} x + C$$

$$12: \int \frac{1}{1-x^2} dx = \tan^{-1} x + C$$

$$13: \int \frac{1}{x\sqrt{x^2-1}} dx = \sec^{-1} x + C$$

$$14: \int \sin(ax + b) dx = -\frac{1}{a} \cos(ax + b) + C$$

$$15: \int \int (ax + b) = \frac{1}{a} \int (ax + b) + C$$

Special Integral Formulas

$$\int \tan x \, dx = \ln |\sec x|$$

$$\int \sinh x \, dx = \cosh x$$

$$\int \cot x \, dx = \ln |\sin x|$$

$$\int \cosh x \, dx = \sinh x$$

$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \tan^{-1} \left(\frac{x}{a} \right)$$

$$\int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right|$$

$$\int \frac{dx}{\sqrt{a^2 - x^2}} = \sin^{-1} \left(\frac{x}{a} \right)$$

$$\int \frac{dx}{\sqrt{x^2 \pm a^2}} = \ln |x + \sqrt{x^2 \pm a^2}|$$

