1. Integration Formulas

Constants of integration have been omitted.

$$\int \sec^2 x \, dx = \tan x \tag{1}$$

$$\int \csc^2 x \, dx = -\cot x \tag{2}$$

$$\int \sec x \tan x \, dx = \sec x \tag{3}$$

$$\int \csc x \cot x \, dx = -\csc x \tag{4}$$

$$\int \sec x \, dx = \ln|\sec x + \tan x| \tag{5}$$

$$\int \csc x \, dx = \ln|\csc x - \cot x| \tag{6}$$

$$\int \tan x \, dx = \ln|\sec x| \tag{7}$$

$$\int \cot x \, dx = \ln|\sin x| \tag{8}$$

$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \tan^{-1}\left(\frac{x}{a}\right) \tag{9}$$

$$\int \frac{dx}{\sqrt{a^2 - x^2}} = \sin^{-1}\left(\frac{x}{a}\right) \tag{10}$$

$$\int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \ln\left|\frac{x-a}{x+a}\right| \tag{11}$$

$$\int \frac{dx}{\sqrt{x^2 \pm a^2}} = \ln\left|x + \sqrt{x^2 \pm a^2}\right| \tag{12}$$