

$$\int (f(u) + g(u)) du = \int f(u) du + \int g(u) du. \quad \int c f(u) du = c \int f(u) du.$$

$$\int u dv = uv - \int v du. \quad \int u^n du = \frac{u^{n+1}}{n+1}, \quad n \neq -1. \quad \int \frac{du}{u} = \ln|u|.$$

$$\int e^u du = e^u. \quad \int u e^u du = (u-1)e^u. \quad \int u^n e^u du = u^n e^u - n \int u^{n-1} e^u du.$$

$$\int a^u du = \frac{a^u}{\ln a}, \quad a > 0, a \neq 1. \quad \int \ln u du = u \ln u - u. \quad \int \frac{du}{u \ln u} = \ln|\ln|u||.$$

$$\int u^r \ln u du = u^{r+1} \left(\frac{\ln u}{n+1} - \frac{1}{(n+1)^2} \right), \quad n \neq -1. \quad \int \frac{du}{a^2 + u^2} = \frac{1}{a} \arctan \frac{u}{a}.$$

$$\int \frac{du}{u^2 - a^2} = \frac{1}{2a} \ln \left| \frac{u-a}{u+a} \right|. \quad \int \frac{du}{a^2 - u^2} = \frac{1}{2a} \ln \left| \frac{a+u}{a-u} \right|.$$

$$\int \frac{du}{(a+bu)(\alpha+\beta u)} = \frac{1}{a\beta - \alpha b} \ln \left| \frac{\alpha + \beta u}{a + bu} \right|$$

$$\int \frac{u du}{(a+bu)(\alpha+\beta u)} = \frac{1}{a\beta - \alpha b} \left[\frac{a}{b} \ln|a+bu| - \frac{\alpha}{\beta} \ln|\alpha+\beta u| \right].$$

$$\int \frac{du}{\sqrt{u^2 + a^2}} = \ln|u + \sqrt{u^2 + a^2}|. \quad \int \frac{du}{\sqrt{u^2 - a^2}} = \ln|u + \sqrt{u^2 - a^2}|, \quad u^2 \geq a^2.$$

$$\int \frac{du}{\sqrt{a^2 - u^2}} = \arcsin \frac{u}{a}, \quad a^2 \geq u^2. \quad \int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a} \arccos \frac{a}{u}, \quad u > a > 0.$$

$$\int \sin u du = -\cos u. \quad \int \cos u du = \sin u. \quad \int \tan u du = -\ln|\cos u|.$$

$$\int \cot u du = \ln|\sin u|. \quad \int \sec u du = \ln|\sec u + \tan u|.$$

$$\int \csc u du = -\ln|\csc u + \cot u| = \ln|\csc u - \cot u|.$$

$$\int \sec^2 u du = \tan u. \quad \int \csc^2 u du = -\cot u. \quad \int \sec u \tan u du = \sec u.$$

$$\int \sin^2 u du = \frac{1}{2}u - \frac{1}{4}\sin 2u. \quad \int \cos^2 u du = \frac{1}{2}u + \frac{1}{4}\sin 2u. \quad \int \tan^2 u du = \tan u - u.$$

$$\int \sin^n u du = -\frac{\sin^{n-1} u \cos u}{n} + \frac{n-1}{n} \int \sin^{n-2} u du.$$

$$\int \cos^n u du = \frac{\cos^{n-1} u \sin u}{n} + \frac{n-1}{n} \int \cos^{n-2} u du.$$