Some Identities

$$\int u^r\,du = \frac{u^{r+1}}{r+1} + C,\ r \neq -1$$

$$\int \frac{1}{u}\,du = \ln|u| + C$$

$$\int e^u\,du = e^u + C$$

$$\int \sin u\,du = -\cos u + C$$

$$\int \cos u\,du = \sin u + C$$

$$\int \tan u\,du = \ln|\sec u| + C$$

$$\int \sec u\,du = \ln|\sec u + \tan u| + C$$

$$\int \sec^2 u\,du = \tan u + C$$

$$\int \frac{du}{\sqrt{a^2 - u^2}} = \arcsin(u/a) + C$$

$$\int \frac{du}{a^2 + u^2} = (1/a)\arctan(u/a) + C$$

$$\int \frac{du}{\sqrt{a^2 + u^2}} = \sinh^{-1}(u/a) + C \text{ or } \ln|u + \sqrt{a^2 + u^2}| + C$$

$$\int \frac{du}{\sqrt{u^2 - a^2}} = \cosh^{-1}(u/a) + C \text{ or } \ln|u + \sqrt{u^2 - a^2}| + C$$

$$\int \frac{du}{a^2 - u^2} = (1/a)\tanh^{-1}(u/a) + C \text{ or } \frac{1}{2a}\ln\left|\frac{a+u}{a-u}\right| + C$$

$$\sin^2(a) + \cos^2(a) = 1$$

$$1 + \tan^2(a) = \sec^2(a)$$

$$\sin(a+b) = \sin(a)\cos(b) + \cos(a)\sin(b)$$

$$\cos(a+b) = \cos(a)\cos(b) - \sin(a)\sin(b)$$

$$\sin^2(a) = \frac{1}{2}(1 - \cos(2a))$$

$$\cos^2(a) = \frac{1}{2}(1 + \cos(2a))$$

$$\sin(a)\cos(a) = \frac{1}{2}\sin(2a)$$