Integration by parts:

$$\int f'(x)g(x)\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\mathrm{d}x.$$

(1) $\displaystyle\int x^a\mathrm{d}x = \frac{x^{a+1}}{a+1} + C$, where $a \neq 1$, $x > 0$,

(2) $\displaystyle\int \frac{\mathrm{d}x}{x} = \ln|x| + C$, where $x \neq 0$,

(3) $\displaystyle\int \mathrm{e}^x\mathrm{d}x = \mathrm{e}^x + C$,

(4) $\displaystyle\int a^x\mathrm{d}x = \frac{a^x}{\ln a} + C$,

(5) $\displaystyle\int \cos x\,\mathrm{d}x = \sin x + C$,

(6) $\displaystyle\int \sin x\,\mathrm{d}x = -\cos x + C$,

(7) $\displaystyle\int \frac{\mathrm{d}x}{\cos^2 x} = \tan x + C$, where $\cos x \neq 0$,

(8) $\displaystyle\int \frac{\mathrm{d}x}{\sin^2 x} = -\frac{1}{\tan x} + C$, where $\sin x \neq 0$,

(9) $\displaystyle\int \frac{\mathrm{d}x}{\sqrt{1-x^2}} = \arcsin x + C$, where $-1 < x < 1$,

(10) $\displaystyle\int \frac{-1}{\sqrt{1-x^2}}\mathrm{d}x = \arccos x + C$, where $-1 < x < 1$,

(11) $\displaystyle\int \frac{\mathrm{d}x}{1+x^2} = \arctan x + C$,

(12) $\displaystyle\int \frac{1}{\sqrt{x^2+1}}\mathrm{d}x = \ln\left(x + \sqrt{x^2+1}\right) + C$,

(13) $\displaystyle\int \frac{1}{\sqrt{x^2-1}}\mathrm{d}x = \ln\left|x + \sqrt{x^2-1}\right| + C$, where $|x| > 1$.

(14) $\displaystyle\int \frac{f'(x)}{f(x)}\mathrm{d}x = \ln|f(x)| + C$.