$$\left(\frac{1}{n+1}x^{n+1}\right)' = x^n \qquad (\ln|x|)' = \frac{1}{x}$$

$$\int x^n \; dx \xRightarrow{n\neq -1} \frac{x^{n-1}}{n+1} + c$$

$$\int x^n \; dx \xRightarrow{n=-1} \int x^{-1} \; dx = \ln|x| + c$$

$$(\sin u)' = u' \cos u$$

$$(\cos u)' = -u' \cos u$$

$$(\tan\; u)' = u' \,(1 + \tan^2 u)$$

$$(\cot u)' = -u' \,(1 + \cot^2 u)$$

$$\int u' \cos u \, dx \; = \; \sin u + c$$

$$\int u' \sin u \, dx \; = \; -\cos u + c$$

$$\int u' \,(1 + \tan^2 u)\, dx \; = \; \tan u + c$$

$$\int u' \,(1 + \cot^2 u) dx \; = \; -\cot u + c$$

$$\left(\frac{1}{n+1}u^{n+1}\right) = u'u^{n}$$

$$(\ln|u|)' = \frac{u'}{u} = u'u^{-1}$$

$$\int u'u^{n}\,dx = -\cot u + c \xrightarrow{n\neq -1} \frac{u^{n-1}}{n+1} + c$$

$$\int u'u^{n}\,dx \xrightarrow{n=-1} \int u'u^{-1}\,dx = \ln|u| + c$$

$$(e^{u})' = u'e^{u}$$

$$\int u'e^{u}\,dx = e^{u} + \mathrm{c}$$

$$\int_{a}^{b} f(x)dx = F(x)|_{a}^{b} = F(b) - F(a)$$

$$\int_{a}^{a} f(x)dx = 0$$

$$\int_{a}^{b} f(x)dx = -\int_{b}^{a} f(x)dx$$

$$\int_{a}^{b} f(x)dx + \int_{b}^{c} f(x)dx = \int_{a}^{c} f(x)dx$$

$$\left(\int_{a}^{g(x)} f(t)\,dt\right)' = f(g(x)\times g'(x))$$