

טבלת אינטגרלים

חוקים:

$$\int cf(x) dx = c \int f(x) dx$$

$$\int f(x) + g(x) dx = \int f(x) dx + \int g(x) dx$$

$$\int f(x) - g(x) dx = \int f(x) dx - \int g(x) dx$$

$$\int u dv = uv - \int v du$$

מציאת הפונקציה הקדומה:

$$\int dx = x + C$$

$$\int a dx = ax + C$$

$$\int x^n dx = \frac{1}{n+1} x^{n+1} + C \quad \text{if } n \neq -1$$

$$\int x^{-n} dx = \frac{1}{-n+1} x^{-n+1} + C \quad \text{if } n \neq 1$$

$$\int \frac{1}{x} dx = \ln|x| + C$$

$$\int \frac{1}{ax+b} dx = \frac{1}{a} \ln|ax+b| + C \quad \text{if } a \neq 0$$

מציאת הפונקציה הטריגונומטרית הקדומה:

$$\int \sin x dx = -\cos x + C$$

$$\int \cos x dx = \sin x + C$$

$$\int \tan x \, dx = \ln |\sec x| + C$$

$$\int \sin^2 x \, dx = \frac{1}{2}x - \frac{1}{4}\sin 2x + C$$

$$\int \cos^2 x \, dx = \frac{1}{2}x + \frac{1}{4}\sin 2x + C$$

$$\int \tan^2 x \, dx = \tan(x) - x + C$$

$$\int \frac{1}{\sqrt{1-x^2}} \, dx = \arcsin(x) + C$$

$$\int \frac{1}{\sqrt{a^2-x^2}} \, dx = \frac{1}{a}\arcsin(x/a) + C \quad \text{if } a \neq 0$$

$$\int \frac{1}{1+x^2} \, dx = \arctan(x) + C$$

$$\int \frac{1}{a^2+x^2} \, dx = \frac{1}{a}\arctan(x/a) + C \quad \text{if } a \neq 0$$

$$\int \arcsin(x) \, dx = x \arcsin(x) + \sqrt{1-x^2} + C$$

$$\int \arccos(x) \, dx = x \arccos(x) - \sqrt{1-x^2} + C$$

$$\int \arctan(x) \, dx = x \arctan(x) - \frac{1}{2}\ln(1+x^2) + C$$

$$\int e^x \, dx = e^x + C$$

$$\int e^{ax} \, dx = \frac{1}{a}e^{ax} + C \quad \text{if } a \neq 0$$

$$\int a^x \, dx = \frac{1}{\ln a}a^x + C \quad \text{if } a > 0, a \neq 1$$

$$\int \ln x \, dx = x \ln x - x + C$$

האינטגרל המסויים:

$$\int_a^b f'(x) \, dx = f(b) - f(a)$$

$$S = \left| \int_a^b f(x) \, dx \right|$$