$\sin^2 x + \cos^2 x = 1$

$\sin(x \pm y) = \sin x \cos y \pm \sin y \cos x$

$\cos(x \pm y) = \cos x \cos y \mp \sin y \sin x$

$\sin 2x = 2 \sin x \cos x, \quad \cos 2x = \cos^2 x - \sin^2 x$

$\operatorname{tg}(x \pm y) = \dfrac{\operatorname{tg} x \pm \operatorname{tg} y}{1 \mp \operatorname{tg} x \cdot \operatorname{tg} y}, \quad \operatorname{tg} 2x = \dfrac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$

$\sin x + \sin y = 2 \sin \dfrac{x+y}{2} \cos \dfrac{x-y}{2}$

$\sin x - \sin y = 2 \sin \dfrac{x-y}{2} \cos \dfrac{x+y}{2}$

$\cos x + \cos y = 2 \cos \dfrac{x+y}{2} \cos \dfrac{x-y}{2}$

$\cos x - \cos y = -2 \sin \dfrac{x+y}{2} \sin \dfrac{x-y}{2}$

$\sin x \sin y = -\dfrac{1}{2} [\cos(x+y) - \cos(x-y)]$

$\sin x \cos y = \dfrac{1}{2} [\sin(x+y) + \sin(x-y)]$

$\cos x \cos y = \dfrac{1}{2} [\cos(x+y) + \cos(x-y)]$

$\sin^2 x = \dfrac{1 - \cos 2x}{2}, \quad \cos^2 x = \dfrac{1 + \cos 2x}{2}$

$\operatorname{sh} x = \dfrac{e^x - e^{-x}}{2}, \quad \operatorname{ch} x = \dfrac{e^x + e^{-x}}{2}$

$\operatorname{ch}^2 x - \operatorname{sh}^2 x = 1$

$\operatorname{sh} 2x = 2 \operatorname{sh} x \operatorname{ch} x, \quad \operatorname{ch} 2x = \operatorname{ch}^2 x + \operatorname{sh}^2 x$

$\operatorname{sh}^2 x = \dfrac{\operatorname{ch} 2x - 1}{2}, \quad \operatorname{ch}^2 x = \dfrac{\operatorname{ch} 2x + 1}{2}$

Differenciálási szabályok:

$(cf)' = cf'$ (c konstans)

$(f+g)' = f' + g', \qquad (fg)' = f'g + fg'$

$\left(\dfrac{f}{g}\right)' = \dfrac{f'g - fg'}{g^2}, \qquad \dfrac{dy}{dx} = \dfrac{dy}{dt}\dfrac{dt}{dx}$

$(x^n)' = nx^{n-1}$ ($n \neq 0$ valós konstans)

$(e^x)' = e^x, \quad (a^x)' = a^x \ln a$

$(\sin x)' = \cos x, \quad (\cos x)' = -\sin x$

$(\operatorname{tg} x)' = \dfrac{1}{\cos^2 x}, \quad (\operatorname{ctg} x)' = -\dfrac{1}{\sin^2 x}$

$(\sinh x)' = \cosh x, \quad (\cosh x)' = \sinh x$

$(\ln x)' = \dfrac{1}{x}, \quad (\log_a x)' = \dfrac{1}{x \ln a}$

$(\arcsin x)' = \dfrac{1}{\sqrt{1-x^2}}, \quad (\arccos x)' = -\dfrac{1}{\sqrt{1-x^2}}$

$(\operatorname{arctg} x)' = \dfrac{1}{1+x^2}, \quad (\operatorname{arcctg} x)' = -\dfrac{1}{1+x^2}$

$(\operatorname{arsh} x)' = \dfrac{1}{\sqrt{1+x^2}}, \quad (\operatorname{arch} x)' = \dfrac{1}{\sqrt{x^2-1}}$

$(\operatorname{arth} x)' = \dfrac{1}{1-x^2}, \quad (\operatorname{arcth} x)' = -\dfrac{1}{x^2-1}$

Integrálási szabályok:

$\int a f(x) \,\mathrm{d}x = a \int f(x) \,\mathrm{d}x$ (a konstans)

$\int [f(x) + g(x)] \,\mathrm{d}x = \int f(x) \,\mathrm{d}x + \int g(x) \,\mathrm{d}x$

$\int f(ax+b) \,\mathrm{d}x = \dfrac{1}{a} F(ax+b) + c$, ahol F az f primitív függvénye

$\int f^m(x) f'(x) \,\mathrm{d}x = \dfrac{f^{m+1}(x)}{m+1} + c$, ha $m \neq -1$

$\int \dfrac{f'(x)}{f(x)} \,\mathrm{d}x = \ln |f(x)| + c$

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

$\int x^n \,\mathrm{d}x = \dfrac{x^{n+1}}{n+1} + c \; (n \neq -1), \quad \int \dfrac{1}{x} \,\mathrm{d}x = \ln |x| + c$

$\int a^x \,\mathrm{d}x = \dfrac{a^x}{\ln a} + c, \quad \int e^{ax} \,\mathrm{d}x = \dfrac{1}{a} e^{ax} + c$

$\int \sin x \,\mathrm{d}x = -\cos x + c, \quad \int \cos x \,\mathrm{d}x = \sin x + c$

$\int \operatorname{tg} x \,\mathrm{d}x = -\ln |\cos x| + c, \quad \int \operatorname{ctg} x \,\mathrm{d}x = \ln |\sin x| + c$

$\int \dfrac{\mathrm{d}x}{\cos^2 x} = \operatorname{tg} x + c, \quad \int \dfrac{\mathrm{d}x}{\sin^2 x} = -\operatorname{ctg} x + c$

$\int \ln x \,\mathrm{d}x = x \ln x - x + c$

$$\int \frac{\mathrm{d}x}{a^2 - x^2} = \begin{cases} \dfrac{1}{a} \operatorname{arth} \dfrac{x}{a} + c, & \text{ha } \left|\dfrac{x}{a}\right| < 1 \\[2ex] \dfrac{1}{a} \operatorname{arcth} \dfrac{x}{a} + c, & \text{ha } \left|\dfrac{x}{a}\right| > 1 \end{cases}$$

$\int \dfrac{\mathrm{d}x}{x^2 + a^2} = \dfrac{1}{a} \operatorname{arctg} \dfrac{x}{a} + c, \quad \int \dfrac{\mathrm{d}x}{\sqrt{a^2 + x^2}} = \operatorname{arsh} \dfrac{x}{a} + c$

$\int \dfrac{\mathrm{d}x}{\sqrt{a^2 - x^2}} = \arcsin \dfrac{x}{a} + c, \quad \int \dfrac{\mathrm{d}x}{\sqrt{x^2 - a^2}} = \operatorname{arch} \dfrac{x}{a} + c$

$$\binom{n}{k} = \frac{n!}{k!(n-k)!}, \qquad \binom{n}{k} = \binom{n}{n-k}, \qquad \binom{n}{0} = 1, \quad (a+b)^n = \binom{n}{0}a^n + \binom{n}{1}a^{n-1}b + \binom{n}{2}a^{n-2}b^2 + \ldots + \binom{n}{n-1}ab^{n-1} + \binom{n}{n}b^n = \sum_{k=0}^{n}\binom{n}{k}a^{n-k}b^k$$

$$e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots + \frac{x^n}{n!} + \ldots \quad \text{(minden } x\text{-re);}$$

$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \ldots + (-1)^{n-1}\frac{x^{2n-1}}{(2n-1)!} + \ldots \quad \text{(minden } x\text{-re);}$$

$$\cos x = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \ldots + (-1)^n\frac{x^{2n}}{(2n)!} + \ldots \quad \text{(minden } x\text{-re);}$$

$$\frac{1}{1-x} = 1 + x + x^2 + x^3 + \ldots + x^n + \ldots \quad (-1 < x < 1);$$

$$\frac{1}{1+x} = 1 - x + x^2 - x^3 + \ldots + (-1)^n x^n + \ldots \quad (-1 < x < 1);$$

$$\ln(x+1) = x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \ldots + (-1)^{n+1}\frac{x^n}{n} + \ldots \quad (-1 < x \le 1);$$

Tetszőleges α valós szám esetén

$$(1+x)^\alpha = 1 + \frac{\alpha}{1!}x + \frac{\alpha(\alpha-1)}{2!}x^2 + \ldots + \frac{\alpha(\alpha-1)\cdots(\alpha-n+1)}{n!}x^n + \ldots$$

($|x| < 1$, de α-tól függően más x értékekre is lehet konvergens; ha α természetes szám, akkor a binomiális tételt kapjuk);

$$\ln\frac{1+x}{1-x} = 2\left(x + \frac{x^3}{3} + \frac{x^5}{5} + \ldots + \frac{x^{2n-1}}{2n-1} + \ldots\right) \quad (|x| < 1);$$

$$\sqrt{1+x} = 1 + \frac{1}{2}x - \frac{1}{2\cdot 4}x^2 + \frac{1\cdot 3}{2\cdot 4\cdot 6}x^3 - \ldots + (-1)^{n-1}\frac{1\cdot 3\cdot 5\cdots(2n-3)}{2\cdot 4\cdot 6\cdots 2n}x^n \ldots$$

($|x| \le 1$);

$$\frac{1}{\sqrt{1+x}} = 1 - \frac{1}{2}x + \frac{1\cdot 3}{2\cdot 4}x^2 - \frac{1\cdot 3\cdot 5}{2\cdot 4\cdot 6}x^3 + \ldots + (-1)^n\frac{1\cdot 3\cdot 5\cdots(2n-1)}{2\cdot 4\cdot 6\cdots 2n}x^n \ldots$$

($-1 < x \le 1$);

$$\operatorname{ch} x = 1 + \frac{x^2}{2!} + \frac{x^4}{4!} + \ldots + \frac{x^{2n}}{(2n)!} + \ldots \quad \text{(minden } x\text{-re);}$$

$$\operatorname{sh} x = \frac{x}{1!} + \frac{x^3}{3!} + \frac{x^5}{5!} + \ldots + \frac{x^{2n+1}}{(2n+1)!} + \ldots \quad \text{(minden } x\text{-re);}$$

Speciálisan a 2π szerint periodikus valós f függvény (2π szerinti) *Fourier-sorának* nevezzük a

$$\sum_{n=0}^{\infty}(a_n \cos nx + b_n \sin nx)$$

trigonometrikus sort, ha

$$a_0 = \frac{1}{2\pi}\int_0^{2\pi} f(x)\,\mathrm{d}\,x \qquad b_0 = 0$$

$$a_n = \frac{1}{\pi}\int_0^{2\pi} f(x)\cos nx\,\mathrm{d}\,x \quad b_n = \frac{1}{\pi}\int_0^{2\pi} f(x)\sin nx\,\mathrm{d}\,x \quad (n = 1, 2, 3, \ldots)$$

Egyenlőtlenségek:

$(1+x)^n \ge 1 + nx$, $x \in (-1, \infty)$

$$\frac{n}{\frac{1}{a_1} + \cdots + \frac{1}{a_n}} \le \sqrt[n]{a_1 \cdots a_n} \le \frac{a_1 + \ldots + a_n}{n}, \quad a_1, \ldots, a_n > 0$$

(egyenlőség pontosan $a_1 = \ldots = a_n$ esetén)

$x + \dfrac{1}{x} \ge 2$ minden $x > 0$ esetén