

$\int \frac{1}{x^a} = \frac{x^{-a+1}}{-a+1}$ $e^{-x} = \frac{1}{e^x}$

INTEGRALI

$\int_1^{\infty} \frac{1}{x^a} < +\infty \Leftrightarrow a > 1$

$\int_0^{+\infty} \frac{1}{x^a} < +\infty \Leftrightarrow a < 1$

$3n! + 1 = (3n+3)!$

$\cos k\pi = (-1)^k$

$\int \frac{1}{\sin x} = \ln \left| \frac{x}{2} \right| + C$

$\int \frac{1}{2 \sin \frac{x}{2}} = \frac{x}{2} + C$

$\cosh x = 1 + \frac{1}{2}x^2 + o(x^2)$

$\sinh x = x + \frac{x^3}{6} + \frac{x^5}{120}$

$e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \frac{x^5}{5!} + \dots + \frac{x^n}{n!} + o(x^n)$

per $x \rightarrow 0$

$\log(1+x) = x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \frac{x^5}{5} + \dots + (-1)^{n-1} \frac{x^n}{n} + o(x^n)$

per $x \rightarrow 0$

$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots + (-1)^n \frac{x^{2n+1}}{(2n+1)!} + o(x^{2n+2})$

per $x \rightarrow 0$

$\cos x = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \dots + (-1)^n \frac{x^{2n}}{(2n)!} + o(x^{2n+1})$

per $x \rightarrow 0$

$\tan x = x + \frac{x^3}{3} + \frac{2}{15}x^5 + o(x^6)$

per $x \rightarrow 0$

$\arctan x = x - \frac{x^3}{3} + \frac{x^5}{5} - \frac{x^7}{7} + \dots + (-1)^n \frac{x^{2n+1}}{(2n+1)} + o(x^{2n+2})$

per $x \rightarrow 0$

$\arcsin x = x + \frac{x^3}{6} + \frac{3}{40}x^5 + o(x^6)$

per $x \rightarrow 0$

LIMITI NOTEVOLI

$\frac{\sin x}{x} = 1$

1) $\lim_{x \rightarrow 0} \frac{1 - \cos x}{x^2} = \frac{1}{2}$

3) $\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1$

5) $\lim_{x \rightarrow 0} \left(1 + \frac{x}{x}\right)^x = e^e$

7) $\lim_{x \rightarrow 0} \frac{\ln(1+x)}{x} = 1$

9) $\lim_{x \rightarrow 0} \frac{e^x - 1}{x} = 1$

2) $\lim_{x \rightarrow 0} \frac{\tan x}{x} = 1$

4) $\lim_{x \rightarrow +\infty} \left(1 + \frac{1}{x}\right)^x = e$

6) $\lim_{x \rightarrow 0} (1+x)^{\frac{1}{x}} = e^a$

8) $\lim_{x \rightarrow 0} \frac{\log_a(1+x)}{x}$

CRITERI CONFRONTO

$\frac{1}{n^a}$ $a > 1$ CONV
 $a \leq 1$ DIVERG

