

$$\text{POCHODNE: } (x^n)' = nx^{n-1} \quad (\ln x)' = \frac{1}{x} \quad (\log_a x)' = \frac{1}{x \ln a}; \text{ dla } a > 0$$

$$(e^x)' = e^x \quad (a^x)' = a^x \ln a; \text{ dla } a > 0$$

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

$$(\operatorname{arc} \operatorname{tg} x)' = \frac{1}{1+x^2} \quad (\operatorname{arc} \operatorname{ctg} x)' = \frac{-1}{1+x^2}$$

$$(\operatorname{arc} \sin x)' = \frac{1}{\sqrt{1-x^2}} \quad (\operatorname{arc} \cos x)' = \frac{-1}{\sqrt{1-x^2}}$$

$$[f(x) \cdot g(x)]' = f'(x) \cdot g(x) + f(x) \cdot g'(x) \quad \left[\frac{f(x)}{g(x)}\right]' = \frac{f'(x) \cdot g(x) - f(x) \cdot g'(x)}{g^2(x)}$$

$$[f(g(x))]' = f'(g(x)) \cdot g'(x) \quad [f(x)^{g(x)}]' = [e^{g(x) \cdot \ln(f(x))}]'$$

$$\text{CAŁKI: } \int x^k dx = \frac{1}{k+1} x^{k+1} + C \text{ dla } k \neq -1$$

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

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

$$\int \frac{1}{1+x^2} dx = \operatorname{arc} \operatorname{tg} x + C \quad \int \frac{1}{\sqrt{1-x^2}} dx = \operatorname{arc} \sin x + C$$

$$\int \operatorname{tg} x dx = -\ln |\cos x| + C \quad \int \operatorname{ctg} x dx = \ln |\sin x| + C$$

$$\int \frac{1}{\cos^2 x} dx = \operatorname{tg} x + C \quad \int \frac{1}{\sin^2 x} dx = -\operatorname{ctg} x + C$$

$$\text{Całkowanie przez części: } \int uv' = uv - \int u'v$$

Całkowanie przez podstawienie:

$$\int f(g(x))g'(x)dx = \int f(t)dt \quad |t = g(x); dt = g'(x)dx|$$