Wzory pomocnicze na 1 kolokwium z Analizy Matematycznej II

$$\frac{\int dx}{(cosx)^2}=tgx+C$$

$$\frac{\int dx}{(sinx)^2}=-ctgx+C$$

$$\frac{\int dx}{\sqrt{1-x^2}}=arcsinx+C$$

$$\frac{\int dx}{\sqrt{a^2-x^2}}=\arcsin\frac{x}{a}+C$$

$$\frac{\int dx}{\sqrt{x^2+k}}=\ln(|x+\sqrt{x^2+k}|)$$

$$\int\frac{f'(x)\,dx}{f(x)}=\ln(|f(x)|)+C$$

$$\int\frac{f'(x)\,dx}{\sqrt{f(x)}}=2\sqrt{f(x)}+C$$

$$\int uv'=uv-\int u'v$$

$$\int\frac{P(x)}{Q(x)}=\int\frac{Adx}{x-x_0}+\int\frac{Bdx}{x-x_1}+\int\frac{Cdx}{(x-x_1)^2}+\ldots+\int\frac{(Dx+E)dx}{x^2-1}$$

$$\int(sinx)^n\,dx=\frac{-1}{n}\sin^{n-1}x*cosx+\frac{n-1}{n}\int\sin^{n-2}xdx$$

$$\int\cos^n x\,dx=\frac{1}{n}\cos^{n-1}x*sinx+\frac{n-1}{n}\int\cos^{n-2}xdx$$

$$\int\sqrt{x^2+k}\,dx=\frac{1}{2}x\sqrt{x^2+k}+\frac{1}{2}k\ln(|x+\sqrt{x^2+k}|)+C$$

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

$$\int\sqrt{a^2-x^2}\,dx=\frac{a^2}{2}\arcsin\frac{x}{|a|}+\frac{x}{2}\sqrt{a^2-x^2}+C$$

$$\int\frac{x^2\,dx}{\sqrt{a^2-x^2}}=\frac{a^2}{2}\arcsin\frac{x}{|a|}-\frac{x}{2}\sqrt{a^2-x^2}+C$$

$$\int\frac{dx}{\sqrt{x^2+k}}=\ln(|x+\sqrt{x^2+k}|)+C$$

$$\int\frac{dx}{\sqrt{a^2-x^2}}=\arcsin\frac{x}{|a|}+C$$

$$S=2\prod\int_a^b f(x)\sqrt{1+[f'(x)]^2}\,dx$$

$$V=\prod\int_a^b[f(x)]^2\,dx\;;\;y=f(x);\;a\le x\le b$$

9. f'xy=f'yx Tw. Szwartza

$$W(A)=\begin{vmatrix} f'xx & \cdots & f'xy \\ f''xy & & f''yy\end{vmatrix}$$ if(f"xx&&f””yy>0)min=W(A); if (f"xx&&f””yy<0)max=W(A);