POKRAČOVANIE

4) $\frac{1}{3}\int \sin(3x+5)\,3dx = \begin{vmatrix} 3x+5=t \\ 3dx = dt \end{vmatrix} = \frac{1}{3}\int \sin t\, dt = \frac{1}{3}(-\cos t)+c = -\frac{1}{3}\cos(3x+5)+c$

5) $\frac{1}{4}\int \sin 4x\, 4dx = \begin{vmatrix} 4x=t \\ 4dx=dt \end{vmatrix} = \frac{1}{4}\int \sin t\, dt = -\frac{1}{4}\cos t + c = -\frac{1}{4}\cos 4x + c = \frac{-\cos 4x}{4}+c \Rightarrow \int \sin kx\, dx = \frac{-\cos kx}{k}$

6) $\frac{1}{2}\int \cos(2x+5)\,2dx = \begin{vmatrix} 2x+5=t \\ 2dx=dt \end{vmatrix} = \frac{1}{2}\int \cos t\, dt = \frac{1}{2}\sin t + c = \frac{\sin(2x+5)}{2}+c$

7) $\frac{1}{3}\int \cos 3x\, 3dx = \begin{vmatrix} 3x=t \\ 3dx=dt \end{vmatrix} = \frac{1}{3}\int \cos t\, dt = \frac{\sin t}{3}+c = \frac{\sin 3x}{3}+c \Rightarrow \int \cos kx\, dx = \frac{\sin kx}{k}+c$

8) $\frac{1}{7}\int e^{7x}\,7dx = \begin{vmatrix} 7x=t \\ 7dx=dt \end{vmatrix} = \frac{1}{7}\int e^t dt = \frac{e^t}{7}+c = \frac{e^{7x}}{7}+c \Rightarrow \int e^{kx}dx = \frac{e^{kx}}{k}+c$

9) $\frac{1}{2}\int 2x \sin(1+x^2)\,dx = \begin{vmatrix} 1+x^2=t \\ 2x\,dx = dt \end{vmatrix} = \frac{1}{2}\int \sin(t)\,dt = \frac{-\cos t}{2}+c = \frac{-\cos(1+x^2)}{2}+c$

10) $\frac{1}{10}\int 10x^4 \cos(2x^5-5)\,dx = \begin{vmatrix} 2x^5-5=t \\ 10x^4dx = dt \end{vmatrix} = \frac{1}{10}\int \cos t\, dt = \frac{1}{10}\sin t + c = \frac{1}{10}\sin(2x^5-5)+c$

11) $\frac{1}{3}\int 3x^2 \cdot e^{x^3}\,dx = \begin{vmatrix} x^3=t \\ 3x^2dx = dt \end{vmatrix} = \frac{1}{3}\int e^t dt = \frac{1}{3}e^t + c = \frac{1}{3}e^{x^3}+c$

12) $\frac{1}{18}\int 18x^8 \cdot \sqrt[3]{2x^9-3}\,dx = \begin{vmatrix} 2x^9-3=t \\ 18x^8dx = dt \end{vmatrix} = \frac{1}{18}\int \overset{t^{\frac{1}{3}}}{\sqrt[3]{t}}\,dt = \frac{1}{18}\,\frac{t^{\frac{4}{3}}}{\frac{4}{3}}+c = \frac{1}{\cancel{18}_6}\cdot\frac{\cancel{3}}{4}\cdot\sqrt[3]{(2x^9-3)^4}+c = \dots$

13) $\frac{1}{3}\int \frac{3x^2}{\sqrt[4]{2+x^3}}\,dx = \begin{vmatrix} 2+x^3=t \\ 3x^2dx = dt \end{vmatrix} = \frac{1}{3}\int \overset{t^{-\frac{1}{4}}}{\frac{1}{\sqrt[4]{t}}}\,dt = \frac{1}{3}\cdot\frac{t^{\frac{3}{4}}}{\frac{3}{4}}+c = \frac{1}{3}\cdot\frac{4}{3}\cdot\sqrt[4]{t^3}+c = \frac{4}{9}\sqrt[4]{(2+x^3)^3}+c$

14) $\frac{1}{2}\int 2\cos x \cdot e^{2\sin x+1}\,dx = \begin{vmatrix} 2\sin x+1=t \\ 2\cos x\, dx = dt \end{vmatrix} = \frac{1}{2}\int e^t dt = \frac{1}{2}e^t + c = \frac{1}{2}e^{2\sin x+1}+c$

15) $\int \frac{e^{1+\operatorname{tg} x}}{\cos^2 x}\,dx = \begin{vmatrix} 1+\operatorname{tg} x=t \\ \frac{1}{\cos^2 x}dx = dt \end{vmatrix} = \int e^t dt = e^t + c = e^{1+\operatorname{tg} x}+c$

16) $\int \frac{2^{\ln x}}{x}\,dx = \begin{vmatrix} \ln x=t \\ \frac{1}{x}dx = dt \end{vmatrix} = \int 2^t dt = \frac{2^t}{\ln 2}+c = \frac{2^{\ln x}}{\ln 2}+c$

$\int a^x dx = \frac{a^x}{\ln a}+c$

17) $\int \frac{1}{x\cos^2 \ln x}\,dx = \begin{vmatrix} \ln x=t \\ \frac{1}{x}dx = dt \end{vmatrix} = \int \frac{1}{\cos^2 t}dt = \operatorname{tg} t + c = \operatorname{tg} \ln x + c$

18) $\int \frac{e^x}{\cos^2(e^x+2)}\,dx = \begin{vmatrix} e^x+2=t \\ e^x dx = dt \end{vmatrix} = \int \frac{1}{\cos^2 t}dt = \operatorname{tg} t + c = \operatorname{tg}(e^x+2)+c$

19) $\frac{1}{6}\int \frac{6x^5}{\sin^2 x^6}\,dx = \begin{vmatrix} x^6=t \\ 6x^5dx = dt \end{vmatrix} = \frac{1}{6}\int \frac{1}{\sin^2 t}dt = -\frac{1}{6}\operatorname{cotg} t + c = -\frac{1}{6}\operatorname{cotg} x^6 + c$

20) $\int \frac{x}{\sin^2(\frac{x^2}{2}+5)}\,dx = \begin{vmatrix} \frac{x^2}{2}+5=t \\ x\,dx = dt \end{vmatrix} = \int \frac{1}{\sin^2 t}dt = -\operatorname{cotg} t + c = -\operatorname{cotg}\left(\frac{x^2}{2}+5\right)+c$