DDÚ | neurčitý integrál

16) $\int x(1-x)^{20}\,dx$

R: S: $1-x=t$ $\left(-\frac{1}{21}(1-x)^{21}+\frac{1}{22}(1-x)^{22}+C\right)$

1) $\int \operatorname{cotg} x\,dx$

2) $\int \operatorname{tg} x\,dx$

3) $\int \frac{x}{x^2+a^2}\,dx$

4) $\int \operatorname{tg}^2 x\,dx$

5) $\int \frac{1-x}{x^2}\,dx$

6) $\int \frac{x^2}{1+x^2}\,dx$

7) $\int \frac{2^{x+2}-5^{x-1}}{10^x}\,dx$

8) $\int \left(1-\frac{1}{x^2}\right)\sqrt{x\sqrt{x}}\,dx$

9) $\int x^2\cdot\sqrt[3]{1+x^3}\,dx$

10) $\int \frac{e^x}{2+e^x}\,dx$

11) $\int \frac{\ln x}{x\sqrt{1+\ln x}}\,dx$

12) $\int \ln x\,dx$

13) $\int \sin^2 x\,dx$

14) $\int x^3 e^{x^2}\,dx$

R: 1) $(\ln|\sin x|+C)$

2) $(-\ln|\cos x|+C)$

3) $\left(\frac{1}{2}\cdot\ln|x^2+a^2|+C\right)$

4) $(\operatorname{tg} x-x+C)$

5) $\left(-\frac{1}{x}-\ln|x|+C\right)$

6) $(x-\operatorname{arctg} x+C)$

7) $\left(2\frac{\left(\frac{1}{5}\right)^x}{\ln\frac{1}{5}}-\frac{1}{5}\frac{\left(\frac{1}{2}\right)^x}{\ln\frac{1}{2}}+C\right)$

8) $\left(\frac{4}{7}x^{\frac{7}{4}}+4x^{-\frac{1}{4}}+C\right)$

9) S: $1+x^3=t$ $\left(\frac{1}{4}\sqrt[3]{(1+x^3)^4}+C\right)$

10) S: $2+e^x=t$ $\left(\ln(2+e^x)+C\right)$

11) S: $1+\ln x=t$ $\left(\frac{2}{3}(1+\ln x)^{\frac{3}{2}}-2(1+\ln x)^{\frac{1}{2}}+C\right)$

12) per-partes=PP $(x\ln x-x+C)$

13) PP $\left(\frac{x-\sin x\cos x}{2}\right)$

14) nejdřív S: $x^2=t$, pak PP $\left(\frac{1}{2}x^2e^{x^2}-\frac{1}{2}e^{x^2}+C\right)$