Zopakujte si základné vzorce integrovania priamou metódou

Neurčitý integrál:

$$\int f(x)dx = F(x)+C \quad \Rightarrow \quad [F(x)+C]' = f(x)$$

f(x) dx je integrand, F(x) je primitívna funkcia, C je integračná konštanta

1) $\int x^n dx = \dfrac{x^{n+1}}{n+1} + C$

9) $\int \dfrac{1}{1+x^2}dx = arctg\ x + C = -arc\cot g\ x + C$

2) $\int \dfrac{1}{x}dx = \ln|x| + C$

10) $\int \dfrac{1}{\sqrt{1-x^2}}dx = arcsin\ x + C = -arccos\ x + C$

3) $\int e^x dx = e^x + C$

11) $\int \cos^2 x\,dx = \dfrac{1}{2}x + \dfrac{1}{4}\sin 2x + C$

4) $\int a^x dx = \dfrac{a^x}{\ln a} + C$

12) $\int \sin^2 x\,dx = \dfrac{1}{2}x - \dfrac{1}{4}\sin 2x + C$

5) $\int \sin x\,dx = -\cos x + C$

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

6) $\int \cos x\,dx = \sin x + C$

14) $\int \ln x\,dx = x(\ln|x| - 1) + C$

7) $\int \dfrac{1}{\cos^2 x}dx = tg\ x + C$

15) $\int \dfrac{1}{\sin x}dx = \ln\left|tg\ \dfrac{x}{2}\right| + C$

8) $\int \dfrac{1}{\sin^2 x}dx = -\cot g\ x + C$

16) $\int \dfrac{1}{\cos x}dx = \ln\left|tg\left(\dfrac{\pi}{4} + \dfrac{x}{2}\right)\right| + C$

2 Vypočítajte integrály:

2) $\int \dfrac{(x-1)^2}{\sqrt{x}}dx =$

3) $\int \sqrt{x}\left(1 + \sqrt[3]{x}\right)dx =$

4) $\int \dfrac{1}{\sqrt[4]{x}}dx =$

5) $\int \left(x + \dfrac{1}{x^2}\right)^2 dx =$

6) $\int \left(\dfrac{\sin 2x}{\cos x}\right)dx =$

7) $\int (\sin^2 x + \cos^2 x)dx =$

8) $\int \dfrac{1}{\sin^2 x.\cos^2 x}dx =$

9) $\int \dfrac{\cos 2x}{\sin^2 x.\cos^2 x}dx =$

10.) $\int \dfrac{1+\sin^2 x}{1-\cos^2 x}\,dx=$ 11) $\int tg^2 x\,dx=$

12) $\int \dfrac{\cos 2x}{\sin x + \cos x}\,dx=$ 13) $\int \sqrt{1+\sin 2x}\,dx=$

14.) $\int \dfrac{1}{1+\cos 2x}\,dx=$ 15.) $\int \dfrac{1}{1-\cos 2x}\,dx=$

16.) $\int \dfrac{\cos^4 x - \sin^4 x}{\cos 2x}\,dx=$ 17.) $\int \dfrac{3-2\cot g^2 x}{\cos^2 x}\,dx=$

18.) $\int \dfrac{18x^2-2}{3x-1}\,dx=$ 19.) $\int \dfrac{4-x}{2+\sqrt{x}}\,dx=$

20.) $\int \dfrac{3x^4-48}{2x^2+8}\,dx=$ 21.) $\int \left(\dfrac{2}{1+x^2} - \dfrac{3}{\sqrt{1-x^2}} \right)dx=$

22.) $\int \dfrac{2x}{x^2+2008}\,dx=$ 23.) $\int 3.2^x dx$ 24.) $\int \dfrac{x^2}{x^3-1939}\,dx=$

25.) $\int \dfrac{\sin x}{13+\cos x}\,dx=$ 26.) $\int \dfrac{e^x}{e^x+\pi}\,dx=$

27.) $\int tgx\,dx=$ 28.) $\int \cot gx\,dx=$ 29.) $\int e^x\left(1-\dfrac{e^{-x}}{x}\right)dx=$

30.) $\int \dfrac{1+\cos x}{x+\sin x}\,dx=$ 31.) $\int \dfrac{\dfrac{1}{x}}{17+\ln x}\,dx=$

32.) $\int \dfrac{x+1}{x-1}\,dx=$ 33.) $\int \dfrac{3x-5}{x+2}\,dx=$

34.) $\int \dfrac{x^2-5x+7}{x-1}\,dx=$ 35.) $\int \dfrac{2x^3-3x^2+5x-4}{x-2}\,dx=$