

# Integrálszámítás feladatok

## Segédanyag Kalkulus I gyakorlathoz

Határozzuk meg az alábbi függvények integrálját!

1.  $f(x) = \sin^2 x$

2.  $f(x) = \sin 2x$

3.  $f(x) = \frac{1}{\sqrt{x+2}}$

4.  $f(x) = \frac{1}{e^x + e^{-x}}$

5.  $f(x) = x^2 + e^x - 2$

6.  $f(x) = 3^x$

7.  $f(x) = 4^{5x+6}$

8.  $f(x) = \frac{x}{\sqrt{2+5x}}$

9.  $f(x) = \frac{1}{\sqrt[3]{x}}$

10.  $f(x) = 3x2^x$

11.  $f(x) = (2^x + 3^x)^2$

12.  $f(x) = \left(\frac{1-x}{x}\right)^2$

13.  $f(x) = \frac{x+1}{\sqrt{x}}$

14.  $f(x) = \arctg x$

15.  $f(x) = \frac{e^{6x}}{e^{2x}+1}$

16.  $f(x) = \frac{(1-x)^3}{x\sqrt[3]{x}}$

17.  $f(x) = \frac{1}{\sqrt{1-2x}}$

18.  $f(x) = \frac{3x}{5-x^2}$

19.  $f(x) = \operatorname{ctg}^2 x$

20.  $f(x) = \frac{1}{x+5}$

21.  $f(x) = \sqrt{e^x - 1}$

22.  $f(x) = \frac{x}{\sqrt[5]{1-x^2}}$
23.  $f(x) = x \cos x$
24.  $f(x) = \frac{1}{(5x-2)^{\frac{5}{2}}}$
25.  $f(x) = x \lg x$
26.  $f(x) = \frac{\sqrt[5]{1-2x+x^2}}{1-x}$
27.  $f(x) = \frac{1}{2+3x^2}$
28.  $f(x) = e^{-x} + e^{-2x}$
29.  $f(x) = \frac{x}{(1+x^2)^{\frac{3}{2}}}$
30.  $f(x) = (\sqrt{x} + \sqrt[3]{x})^2$
31.  $f(x) = 2xe^{-3x}$
32.  $f(x) = \frac{1}{x+\sqrt{x}}$
33.  $f(x) = (\sin x + \cos x)^2$
34.  $f(x) = \frac{\sin x}{\sqrt{\cos^3 x}}$
35.  $f(x) = x^2\sqrt{1+x^3}$
36.  $f(x) = \frac{\sin x}{\sqrt{\cos 2x}}$
37.  $f(x) = \frac{x}{\sqrt{x^2+1}}$
38.  $f(x) = x\sqrt{x+1}$
39.  $f(x) = (x^3 + 1) \ln x$
40.  $f(x) = x^2(4x^3 - 1)^{10}$
41.  $f(x) = \frac{e^{\sqrt{x}}}{\sqrt{x}}$
42.  $f(x) = e^x \cos 2x$