Seminari 4

Matematika za ekonomiste 2

Damir Horvat

FOI, Varaždin

Sadržaj

deseti zadatak

prvi zadatak drugi zadatak treći zadatak četvrti zadatak Funkcija tangens i njezina inverzna funkcija peti zadatak šesti zadatak sedmi zadatak osmi zadatak deveti zadatak

prvi zadatak

Riješite neodređeni integral $\int \ln x \, \mathrm{d}x$.

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, \mathrm{d}x =$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, \mathrm{d}x = \int 1 \cdot \ln x \, \mathrm{d}x$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, \mathrm{d}x = \int 1 \cdot \ln x \, \mathrm{d}x = \int (x)' \ln x \, \mathrm{d}x$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x -$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x - \int x \cdot (\ln x)' \, dx$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x - \int x \cdot (\ln x)' \, dx = x \ln x$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x - \int x \cdot (\ln x)' \, dx = x \ln x -$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x - \int x \cdot (\ln x)' \, dx = x \ln x - \int x \cdot \frac{1}{x} \, dx$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int \ln x \, dx$.

 $= x \ln x$

Rješenje

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x - \int x \cdot (\ln x)' \, dx = x \ln x - \int x \cdot \frac{1}{x} \, dx =$$

 $\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x - \int x \cdot (\ln x)' \, dx = x \ln x - \int x \cdot \frac{1}{x} \, dx =$$

$$= x \ln x -$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

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$$= x \ln x - \int dx$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x - \int x \cdot (\ln x)' \, dx = x \ln x - \int x \cdot \frac{1}{x} \, dx =$$

$$= x \ln x - \int dx = x \ln x$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int \ln x \, dx$.

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x - \int x \cdot (\ln x)' \, dx = x \ln x - \int x \cdot \frac{1}{x} \, dx =$$

$$= x \ln x - \int dx = x \ln x - x$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int \ln x \, dx$.

Rješenje

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x - \int x \cdot (\ln x)' \, dx = x \ln x - \int x \cdot \frac{1}{x} \, dx =$$

 $= x \ln x - \int dx = x \ln x - x + C$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Riješite neodređeni integral $\int \ln x \, dx$.

Rješenje

$$\int \ln x \, dx = \int 1 \cdot \ln x \, dx = \int (x)' \ln x \, dx =$$

$$= x \ln x - \int x \cdot (\ln x)' \, dx = x \ln x - \int x \cdot \frac{1}{x} \, dx =$$

 $= x \ln x - \int dx = x \ln x - x + C, \quad C \in \mathbb{R}$

drugi zadatak

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

$$\int x^4 \ln 8x \, \mathrm{d}x =$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

$$\int x^4 \ln 8x \, \mathrm{d}x = \int \left(\frac{x^5}{5}\right)' \ln 8x \, \mathrm{d}x$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

$$\int x^4 \ln 8x \, dx = \int \left(\frac{x^5}{5}\right)' \ln 8x \, dx = \frac{x^5}{5} \ln 8x$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

$$\int x^4 \ln 8x \, dx = \int \left(\frac{x^5}{5}\right)' \ln 8x \, dx = \frac{x^5}{5} \ln 8x - 1$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

$$\int x^4 \ln 8x \, dx = \int \left(\frac{x^5}{5}\right)' \ln 8x \, dx = \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} (\ln 8x)' \, dx$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

$$\int x^4 \ln 8x \, dx = \int \left(\frac{x^5}{5}\right)' \ln 8x \, dx = \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} (\ln 8x)' \, dx =$$

$$= \frac{x^5}{5} \ln 8x$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

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$$= \frac{x^5}{5} \ln 8x -$$

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$$= \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} \cdot \frac{1}{5} \ln 8x - \frac{x^5}{5} \ln 8x -$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

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$$= \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} \cdot \frac{1}{8x}$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

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$$= \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} \cdot \frac{1}{8x} \cdot 8$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

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$$= \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} \cdot \frac{1}{8x} \cdot 8 \, dx$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

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$$= \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} \cdot \frac{1}{8x} \cdot 8 \, dx = \frac{x^5}{5} \ln 8x -$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

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$$= \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} \cdot \frac{1}{8x} \cdot 8 \, dx = \frac{x^5}{5} \ln 8x - \frac{1}{5} \int x^4 \, dx$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

Rješenje

$$\int x^4 \ln 8x \, dx = \int \left(\frac{x^5}{5}\right)' \ln 8x \, dx = \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} (\ln 8x)' \, dx =$$

$$= \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} \cdot \frac{1}{8x} \cdot 8 \, dx = \frac{x^5}{5} \ln 8x - \frac{1}{5} \int x^4 \, dx =$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

 $=\frac{x^5}{5}\ln 8x-\frac{1}{5}$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

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$$= \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} \cdot \frac{1}{8x} \cdot 8 \, dx = \frac{x^5}{5} \ln 8x - \frac{1}{5} \int x^4 \, dx =$$

$$=\frac{x^5}{5}\ln 8x-\frac{1}{5}\cdot\frac{x^5}{5}$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

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$$= \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} \cdot \frac{1}{8x} \cdot 8 \, dx = \frac{x^5}{5} \ln 8x - \frac{1}{5} \int x^4 \, dx =$$

$$=\frac{x^5}{5}\ln 8x - \frac{1}{5}\cdot \frac{x^5}{5} + C$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

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$$= \frac{x^5}{5} \ln 8x - \frac{1}{5} \cdot \frac{x^5}{5} + C = \frac{x^5}{5} \ln 8x - \frac{1}{25}x^5 + C$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x^4 \ln 8x \, dx$.

Rješenje

$$\int x^4 \ln 8x \, dx = \int \left(\frac{x^5}{5}\right)' \ln 8x \, dx = \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} (\ln 8x)' \, dx =$$

$$= \frac{x^5}{5} \ln 8x - \int \frac{x^5}{5} \cdot \frac{1}{8x} \cdot 8 \, dx = \frac{x^5}{5} \ln 8x - \frac{1}{5} \int x^4 \, dx =$$

$$= \frac{x}{5} \ln 8x - \int \frac{x}{5} \cdot \frac{1}{8x} \cdot 8 \, dx = \frac{x}{5} \ln 8x - \frac{1}{5} \int x^4 \, dx =$$

$$x^5 + 3 + \frac{1}{5} x^5 + \frac$$

$$= \frac{x^5}{5} \ln 8x - \frac{1}{5} \cdot \frac{x^5}{5} + C = \frac{x^5}{5} \ln 8x - \frac{1}{25}x^5 + C, \quad C \in \mathbb{R}$$

 $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$

treći zadatak

Riješite neodređeni integral $\int x \cos 3x \, dx$.

Riješite neodređeni integral $\int x \cos 3x \, dx$.

$$\int x \cos 3x \, \mathrm{d}x =$$

Riješite neodređeni integral $\int x \cos 3x \, dx$.

$$\int x \cos 3x \, \mathrm{d}x = \int x \cdot \left(\frac{1}{3} \sin 3x\right)' \, \mathrm{d}x$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Riješite neoc
$$\int \cos 3x \, dx =$$
Rješenje

Rješenje

Riješite neod $\int \cos 3x \, \mathrm{d}x = \begin{bmatrix} 3x = t \end{bmatrix}$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Riješite neod
$$\int \cos 3x \, dx = \begin{bmatrix} 3x = t / ' \\ \text{Rješenje} \end{bmatrix}$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Riješite neod
$$\int \cos 3x \, dx = \begin{bmatrix} 3x = t / \\ 3 \end{bmatrix}$$
Rješenje

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Rješenje

Riješite neod $\int \cos 3x \, dx = \begin{bmatrix} 3x = t / \\ 3 \, dx \end{bmatrix}$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Riješite neod $\int \cos 3x \, dx = \begin{vmatrix} 3x = t / \\ 3 \, dx = \end{vmatrix}$ Rješenje

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

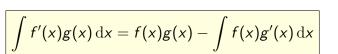
Riješite neod
$$\int \cos 3x \, dx = \begin{bmatrix} 3x = t / ' \\ 3 \, dx = dt \end{bmatrix}$$
Rješenje

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Riješite neod
$$\int \cos 3x \, dx = \begin{bmatrix} 3x = t / ' \\ 3 \, dx = dt \end{bmatrix} =$$
Rješenje

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Riješite neod
$$\int \cos 3x \, dx = \begin{bmatrix} 3x = t / ' \\ 3 \, dx = dt \end{bmatrix} = \int$$
Rješenje



 $\int \cos 3x \, dx = \begin{vmatrix} 3x = t/' \\ 3 \, dx = dt \end{vmatrix} = \int \cos t$ Riješite neoc

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Rješenje

 $\int \cos 3x \, dx = \begin{vmatrix} 3x = t / \\ 3 \, dx = dt \end{vmatrix} = \int \cos t \cdot \frac{dt}{3}$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Rješenje

$$\int \cos 3x \, dx = \begin{bmatrix} 3x = t/' \\ 3 \, dx = dt \end{bmatrix} = \int \cos t \cdot \frac{dt}{3} =$$

$$\frac{1}{2}$$

$$\frac{1}{3}\int d$$

$$\frac{1}{2}$$

$$\frac{1}{2} \int$$

$$\int \cos t \, \mathrm{d}t$$

$=\frac{1}{3}\int\cos t\,\mathrm{d}t$

 $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$



Riješite neod
$$\int \cos 3x \, dx = \begin{bmatrix} 3x = t / ' \\ 3 \, dx = dt \end{bmatrix} = \int \cos t \cdot \frac{dt}{3} =$$
Rješenje
$$= \frac{1}{3} \int \cos t \, dt = \frac{1}{3} \sin t$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

$$\int \cos 3x \, dx = \begin{bmatrix} 3x = t/' \\ 3 \, dx = dt \end{bmatrix} = \int \cos t \cdot \frac{dt}{3} =$$
$$= \frac{1}{3} \int \cos t \, dt = \frac{1}{3} \sin t + C$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

$$\int \cos 3x \, dx = \begin{bmatrix} 3x = t / \\ 3 \, dx = dt \end{bmatrix} = \int \cos t \cdot \frac{dt}{3} =$$

$$= \frac{1}{3} \int \cos t \, dt = \frac{1}{3} \sin t + C = \frac{1}{3} \sin 3x + C$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neod
$$\int \cos 3x \, dx = \begin{bmatrix} 3x = t / ' \\ 3 \, dx = dt \end{bmatrix} = \int \cos t \cdot \frac{dt}{3} =$$
Rješenje
$$= \frac{1}{3} \int \cos t \, dt = \frac{1}{3} \sin t + C = \frac{1}{3} \sin 3x + C, \quad C \in \mathbb{R}$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Riješite neodređeni integral $\int x \cos 3x \, dx$.

$$\int x \cos 3x \, \mathrm{d}x = \int x \cdot \left(\frac{1}{3} \sin 3x\right)' \, \mathrm{d}x =$$

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$$=x\cdot\frac{1}{3}\sin 3x$$

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$$\int x \cos 3x \, dx = \int x \cdot \left(\frac{1}{3} \sin 3x\right)' dx =$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx$$

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Riješite neodređeni integral $\int x \cos 3x \, dx$.

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$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x$$

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$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x -$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x \cos 3x \, dx$.

$$\int x \cos 3x \, \mathrm{d}x = \int x \cdot \left(\frac{1}{3} \sin 3x\right)' \, \mathrm{d}x =$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Riješite neodređeni integral $\int x \cos 3x \, dx$.

$$\int x \cos 3x \, \mathrm{d}x = \int x \cdot \left(\frac{1}{3} \sin 3x\right)' \, \mathrm{d}x =$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x + \frac{x}{3}$$

$$=\frac{x}{3}\sin 3x$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x \cos 3x \, dx$.

$$\int x \cos 3x \, dx = \int x \cdot \left(\frac{1}{3} \sin 3x\right)' \, dx =$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

$$= \frac{x}{3} \sin 3x - \frac{1}{3} \cdot$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Zadat

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

$$= \frac{x}{3}\sin 3x - \frac{1}{3}.$$

 $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$

 $\int \sin 3x \, \mathrm{d}x =$



Zadat

$$\int \sin 3x \, \mathrm{d}x = \begin{bmatrix} 3x = t \\ \end{bmatrix}$$

 $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$

3/16

Rješei

 $=\frac{x}{3}\sin 3x-\frac{1}{3}$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

Zadat

Riješit
$$\int \sin 3x \, dx = \begin{bmatrix} 3x = t / ' \\ \text{Rješei} \end{bmatrix}$$

 $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$

3/16

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

 $=\frac{x}{3}\sin 3x-\frac{1}{3}$

$$\int \sin 3x \, \mathrm{d}x = \left[\begin{array}{c} 3x = t / {}^{\prime} \\ 3 \end{array} \right]$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

$$= \frac{x}{3} \sin 3x - \frac{1}{3} \cdot$$

$$\int \sin 3x \, \mathrm{d}x = \left[\begin{array}{c} 3x = t / ' \\ 3 \, \mathrm{d}x \end{array} \right]$$

$$=x\cdot\frac{1}{3}\sin^2\theta$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

$$=x\cdot \frac{1}{3}\sin$$

$$= x \cdot \frac{1}{3} \sin 3x - \frac{1}{3} = \frac{x}{3} \sin 3x$$

- - - - 3/16

Rješei

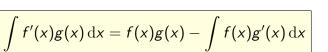
$$\int \sin 3x \, \mathrm{d}x = \begin{bmatrix} 3x = t / \\ 3 \, \mathrm{d}x = \end{bmatrix}$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

$$= x \cdot \frac{1}{3} \sin 3x -$$

$$= \frac{x}{3} \sin 3x - \frac{1}{3} \cdot$$





Rješei

$$\int \sin 3x \, \mathrm{d}x = \begin{bmatrix} 3x = t / \\ 3 \, \mathrm{d}x = \mathrm{d}t \end{bmatrix}$$

 $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

$$= x \cdot \frac{1}{3} \sin 3x - \frac{1}{3} \cdot \frac{1$$

3/16

Rješei

$$\int \sin 3x \, \mathrm{d}x = \begin{bmatrix} 3x = t / \\ 3 \, \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$$

 $=\frac{x}{3}\sin 3x-\frac{1}{3}$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

- $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) \int f(x)g'(x)\,\mathrm{d}x$

$$\int \sin 3x \, \mathrm{d}x = \left[\begin{array}{c} 3x = t / \\ 3 \, \mathrm{d}x = \mathrm{d}t \end{array} \right] = \int$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x + \frac{x}{3} \sin 3x$$

$$= x \cdot \frac{1}{3} \sin 3x - \frac{1}{3} \sin 3x - \frac{1}{3} \cdot \frac{1}{3} = \frac{x}{3} \sin 3x - \frac{1}{3} \cdot \frac{1}{3} = \frac{x}{3} \sin 3x - \frac{1}{3} = \frac{x}{3} = \frac{x}{3} \sin 3x - \frac{1}{3} = \frac{x}{3} = \frac{x}{3} = \frac{x}{3} \sin 3x - \frac{x}{3} = \frac{x}{3}$$

 $\int \sin 3x \, dx = \begin{vmatrix} 3x = t/' \\ 3 \, dx = dt \end{vmatrix} = \int \sin t$

 $= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x + \frac{x}{3} \sin 3x$

 $=\frac{x}{3}\sin 3x-\frac{1}{3}$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

 $=\frac{x}{3}\sin 3x-\frac{1}{3}$

$$\int \sin 3x \, dx = \begin{bmatrix} 3x = t / \\ 3 \, dx = dt \end{bmatrix} = \int \sin t \cdot \frac{dt}{3}$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x + \frac{x}{3} \sin 3x$$

 $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$

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Rješei

 $=\frac{x}{3}\sin 3x-\frac{1}{3}$

 $=\frac{1}{3}\int\sin t\,\mathrm{d}t$

 $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$

 $\int \sin 3x \, dx = \begin{vmatrix} 3x = t/' \\ 3 \, dx = dt \end{vmatrix} = \int \sin t \cdot \frac{dt}{3} =$

 $= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x + \frac{x}$

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Rješei

 $=\frac{1}{3}\int\sin t\,\mathrm{d}t=-\frac{1}{3}\cdot\cos t$

 $=\frac{x}{3}\sin 3x-\frac{1}{3}$

 $\int \sin 3x \, dx = \begin{vmatrix} 3x = t/' \\ 3 \, dx = dt \end{vmatrix} = \int \sin t \cdot \frac{dt}{3} =$

 $= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x + \frac{x}{3$

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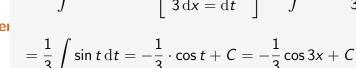
 $=\frac{x}{3}\sin 3x-\frac{1}{3}$

 $\int \sin 3x \, dx = \begin{vmatrix} 3x = t/' \\ 3 \, dx = dt \end{vmatrix} = \int \sin t \cdot \frac{dt}{3} =$

 $= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x + \frac{x}{3$

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 $=\frac{1}{3}\int\sin t\,\mathrm{d}t=-\frac{1}{3}\cdot\cos t+C$



 $=\frac{x}{3}\sin 3x-\frac{1}{3}$

 $\int \sin 3x \, dx = \left| \begin{array}{c} 3x = t / \\ 3 \, dx = dt \end{array} \right| = \int \sin t \cdot \frac{dt}{3} =$

 $= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x + \frac{x}{3} \sin 3x$

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Riješit

 $\int \sin 3x \, dx = \begin{vmatrix} 3x = t/' \\ 3 \, dx = dt \end{vmatrix} = \int \sin t \cdot \frac{dt}{3} =$

 $=\frac{1}{3}\int\sin t\,\mathrm{d}t=-\frac{1}{3}\cdot\cos t+C=-\frac{1}{3}\cos 3x+C,\quad C\in\mathbb{R}$

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 $= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{x}{3} \sin 3x + \frac{x}{3} \sin 3x$

 $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$

 $= \frac{x}{3}\sin 3x - \frac{1}{3}$





Rješei

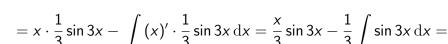












 $\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$

 $= \frac{x}{3}\sin 3x - \frac{1}{3}\cdot \frac{-1}{3}\cos 3x$

 $=\frac{1}{3}\int\sin t\,\mathrm{d}t=-\frac{1}{3}\cdot\cos t+C=-\frac{1}{3}\cos 3x+C,\quad C\in\mathbb{R}$

 $\int \sin 3x \, dx = \left| \begin{array}{c} 3x = t / \\ 3 \, dx = dt \end{array} \right| = \int \sin t \cdot \frac{dt}{3} =$

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Riješite neodređeni integral $\int x \cos 3x \, dx$.

$$\int x \cos 3x \, \mathrm{d}x = \int x \cdot \left(\frac{1}{3} \sin 3x\right)' \, \mathrm{d}x =$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

$$=\frac{x}{3}\sin 3x-\frac{1}{3}\cdot\frac{-1}{3}\cos 3x+C$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Riješite neodređeni integral $\int x \cos 3x \, dx$.

$$\int x \cos 3x \, dx = \int x \cdot \left(\frac{1}{3} \sin 3x\right)' \, dx =$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

$$= \frac{x}{3}\sin 3x - \frac{1}{3}\cdot \frac{-1}{3}\cos 3x + C = \frac{x}{3}\sin 3x + \frac{1}{9}\cos 3x + C$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int x \cos 3x \, dx$.

$$\int x \cos 3x \, \mathrm{d}x = \int x \cdot \left(\frac{1}{3} \sin 3x\right)' \, \mathrm{d}x =$$

$$\int x \cos 3x \, dx = \int x \cdot \left(\frac{3}{3} \sin 3x\right) \, dx =$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)' \cdot \frac{1}{3} \sin 3x \, dx = \frac{x}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx =$$

$$= x \cdot \frac{1}{3} \sin 3x - \int (x)^{3} \cdot \frac{1}{3} \sin 3x \, dx = \frac{1}{3} \sin 3x - \frac{1}{3} \int \sin 3x \, dx = \frac{1}{3} \sin 3x \, dx$$

$$= \frac{x}{3}\sin 3x - \frac{1}{3} \cdot \frac{-1}{3}\cos 3x + C = \frac{x}{3}\sin 3x + \frac{1}{9}\cos 3x + C, \quad C \in \mathbb{R}$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

četvrti zadatak

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^2 + x)e^{5x} \, \mathrm{d}x =$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^2 + x) e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)'$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^2 + x) e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$
$$= (x^2 + x) \cdot \frac{1}{5}e^{5x}$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^2 + x) e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$
$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} -$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} - \int (x^2 + x)' \cdot \frac{1}{5}e^{5x} dx$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} - \int (x^2 + x)' \cdot \frac{1}{5}e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x}$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^{2} + x) e^{5x} dx = \int (x^{2} + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= (x^{2} + x) \cdot \frac{1}{5}e^{5x} - \int (x^{2} + x)' \cdot \frac{1}{5}e^{5x} dx =$$

$$= \left(\frac{1}{5}x^{2} + \frac{1}{5}x\right)e^{5x} -$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} - \int (x^2 + x)' \cdot \frac{1}{5}e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^{2} + x)e^{5x} dx = \int (x^{2} + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= (x^{2} + x) \cdot \frac{1}{5}e^{5x} - \int (x^{2} + x)' \cdot \frac{1}{5}e^{5x} dx =$$

$$= \left(\frac{1}{5}x^{2} + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\int$$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

Rješenje

$$\int (x^2 + x) e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} - \int (x^2 + x)' \cdot \frac{1}{5}e^{5x} dx =$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\int (2x+1)$

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} - \int (x^2 + x)' \cdot \frac{1}{5}e^{5x} dx =$$

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

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

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Rješenje
$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$\int (x^{2} + x) \cdot \frac{1}{5} e^{5x} - \int (x^{2} + x)' \cdot \frac{1}{5} e^{5x} dx =$$

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

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x}$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Rješenje
$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} - \int (x^2 + x)' \cdot \frac{1}{5}e^{5x} dx =$$

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

$$=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Rješenje
$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$=(x^2+x)\cdot$$

$$\begin{bmatrix} 1 & 1 \\ -x^2 + - \end{bmatrix}$$

$$5^{-x^2}$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}$$

$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} - \int (x^2 + x)' \cdot \frac{1}{5}e^{5x} dx =$$

$$(-x)^{2} \cdot (-5)^{2} e^{5x} dx =$$

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

$$\int f'(x)g(x)\,\mathrm{d}x = f(x)g(x) - \int f(x)g'(x)\,\mathrm{d}x$$

Rješenje
$$\int (x^2 + x) e^{5x} dx = \int (x^2 + x) \cdot \int$$

$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} - \int (x^2 + x)' \cdot \frac{1}{5}e^{5x} dx =$$

$$=\left(\frac{1}{\pi}x^2\right)$$

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

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

$$=\left(\frac{1}{5}x^{2}+\frac{1}{5}x\right)e^{5x}-\frac{1}{5}\int_{-\frac{1}{5}}^{\frac{1}{5}}$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

Zadatak 4

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

Rješenje

Spesenge
$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} - \int (x^2 + x)' \cdot \frac{1}{5}e^{5x} dx =$$

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

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\int (2x+1)\cdot \left(\frac{1}{5}e^{5x}\right)' dx$$

Zadatak 4

Riješite neodređeni integral $\int (x^2 + x)e^{5x} dx$.

Rješenje
$$\int (x^2 + x)e^{5x} dx = \int (x^2 + x) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$\int_{0}^{\infty} dx$$

$$= (x^2 + x) \cdot \frac{1}{5}e^{5x} - \int (x^2 + x)' \cdot \frac{1}{5}e^{5x} dx =$$

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

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\int (2x+1)\cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$\int f'(x)g(x) dx = f(x)g(x) - \int f(x)g'(x) dx$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot \int (2x+1)\cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\frac{1}{5}\cdot\int\left(2x+1\right)\cdot\left(\frac{1}{5}e^{5x}\right)'\mathrm{d}x=$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x}$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot \int (2x+1)\cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

 $=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\frac{1}{5}\cdot$

$$=\left(rac{1}{5}x^2+rac{1}{5}x
ight)e^{5x}-rac{1}{5}\cdot\int\left(2x+1
ight)\cdot\left(rac{1}{5}e^{5x}
ight)'\mathrm{d}x=$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left| (2x+1) \cdot \frac{1}{5}e^{5x} \right|$

$$=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\frac{1}{5}\cdot\int\left(2x+1\right)\cdot\left(\frac{1}{5}e^{5x}\right)'\mathrm{d}x=$$

$$=\left(rac{1}{5}x^2+rac{1}{5}x
ight)e^{5x}-rac{1}{5}\cdot\int\left(2x+1
ight)\cdot\left(rac{1}{5}e^{5x}
ight)'\mathrm{d}x=$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\left[(2x+1)\cdot\frac{1}{5}e^{5x} - \int (2x+1)'\cdot\frac{1}{5}e^{5x}\,\mathrm{d}x\right]$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)^{x} dx =$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot \left| (2x+1)\cdot \frac{1}{5}e^{5x} - \int (2x+1)'\cdot \frac{1}{5}e^{5x} \, dx \right| =$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x}$

 $=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)^{x} dx =$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot \left| (2x+1)\cdot \frac{1}{5}e^{5x} - \int (2x+1)'\cdot \frac{1}{5}e^{5x} \, dx \right| =$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left($

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)^{x} dx =$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot \left| (2x+1)\cdot \frac{1}{5}e^{5x} - \int (2x+1)'\cdot \frac{1}{5}e^{5x} \, \mathrm{d}x \right| =$

 $=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\left(\frac{2}{25}x\right)$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)^{x} dx =$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot \left|(2x+1)\cdot \frac{1}{5}e^{5x} - \int (2x+1)'\cdot \frac{1}{5}e^{5x} dx\right| =$

 $=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\left(\frac{2}{25}x+\right)e^{5x}$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot \left|(2x+1)\cdot \frac{1}{5}e^{5x} - \int (2x+1)'\cdot \frac{1}{5}e^{5x} dx\right| =$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x}$

 $=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\frac{1}{5}\cdot\int(2x+1)\cdot\left(\frac{1}{5}e^{5x}\right)^{x}\mathrm{d}x=$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot \left| (2x+1)\cdot \frac{1}{5}e^{5x} - \int (2x+1)'\cdot \frac{1}{5}e^{5x} \, dx \right| =$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left[(2x+1) \cdot \frac{1}{5}e^{5x} - \int (2x+1)' \cdot \frac{1}{5}e^{5x} \, dx \right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int$$

 $=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\frac{1}{5}\cdot\int(2x+1)\cdot\left(\frac{1}{5}e^{5x}\right)^{x}\mathrm{d}x=$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left[(2x+1) \cdot \frac{1}{5}e^{5x} - \int (2x+1)' \cdot \frac{1}{5}e^{5x} \, dx \right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2$$

 $=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\frac{1}{5}\cdot\int(2x+1)\cdot\left(\frac{1}{5}e^{5x}\right)^{x}\mathrm{d}x=$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x}$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\left|(2x+1)\cdot\frac{1}{5}e^{5x} - \int (2x+1)'\cdot\frac{1}{5}e^{5x}\,\mathrm{d}x\right| =$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)^x dx =$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot \left| (2x+1)\cdot \frac{1}{5}e^{5x} - \int (2x+1)'\cdot \frac{1}{5}e^{5x} \, dx \right| =$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2\cdot \frac{1}{5}e^{5x} dx$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\left|(2x+1)\cdot\frac{1}{5}e^{5x} - \int (2x+1)'\cdot\frac{1}{5}e^{5x}\,\mathrm{d}x\right| =$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2\cdot \frac{1}{5}e^{5x} dx =$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\int (2x+1)\cdot\left(\frac{1}{5}e^{5x}\right)'\mathrm{d}x =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left[(2x+1) \cdot \frac{1}{5}e^{5x} - \int (2x+1)' \cdot \frac{1}{5}e^{5x} \, dx \right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} \, dx =$$

$$= \left(\frac{1}{5}x^2\right) e^{5x}$$

$$e^{5x}$$

$$=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\frac{1}{5}\cdot\int\left(2x+1\right)\cdot\left(\frac{1}{5}e^{5x}\right)'\mathrm{d}x=$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left[(2x+1) \cdot \frac{1}{5}e^{5x} - \int (2x+1)' \cdot \frac{1}{5}e^{5x} \, dx \right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} \, dx =$$

 $= \left(\frac{1}{5}x^2 + \frac{3}{25}x\right) e^{5x}$

$$=\left(rac{1}{5}x^2+rac{1}{5}x
ight)e^{5x}-rac{1}{5}\cdot\int\left(2x+1
ight)\cdot\left(rac{1}{5}e^{5x}
ight)'\mathrm{d}x=$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\left[(2x+1)\cdot\frac{1}{5}e^{5x} - \int (2x+1)'\cdot\frac{1}{5}e^{5x}\,\mathrm{d}x\right] =$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2\cdot \frac{1}{5}e^{5x} dx =$

 $=\left(\frac{1}{5}x^2+\frac{3}{25}x-\frac{1}{25}\right)e^{5x}$

$$=\left(rac{1}{5}x^2+rac{1}{5}x
ight)e^{5x}-rac{1}{5}\cdot\int\left(2x+1
ight)\cdot\left(rac{1}{5}e^{5x}
ight)'\mathrm{d}x=$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\left[(2x+1)\cdot\frac{1}{5}e^{5x} - \int (2x+1)'\cdot\frac{1}{5}e^{5x}\,\mathrm{d}x\right] =$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} dx =$

 $= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25}\int_{-\infty}^{\infty} e^{5x} dx$

$$=\left(rac{1}{5}x^2+rac{1}{5}x
ight)e^{5x}-rac{1}{5}\cdot\int\left(2x+1
ight)\cdot\left(rac{1}{5}e^{5x}
ight)'\mathrm{d}x=$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\left[(2x+1)\cdot\frac{1}{5}e^{5x} - \int (2x+1)'\cdot\frac{1}{5}e^{5x}\,\mathrm{d}x\right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25}\int e^{5x} dx$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\left[(2x+1)\cdot\frac{1}{5}e^{5x} - \int (2x+1)'\cdot\frac{1}{5}e^{5x}\,\mathrm{d}x\right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25}\int e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x}$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)' dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\left[(2x+1)\cdot\frac{1}{5}e^{5x} - \int (2x+1)'\cdot\frac{1}{5}e^{5x}\,\mathrm{d}x\right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25}\int e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25}\cdot$$

$$=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\frac{1}{5}\cdot\int\left(2x+1\right)\cdot\left(\frac{1}{5}e^{5x}\right)'\mathrm{d}x=$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\left[(2x+1)\cdot\frac{1}{5}e^{5x} - \int (2x+1)'\cdot\frac{1}{5}e^{5x}\,\mathrm{d}x\right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25}\int e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25}\cdot \frac{1}{5}e^{5x}$$

$$=\left(rac{1}{5}x^2+rac{1}{5}x
ight)e^{5x}-rac{1}{5}\cdot\int\left(2x+1
ight)\cdot\left(rac{1}{5}e^{5x}
ight)'\mathrm{d}x=$$

$$= \left(\frac{1}{5}x^{2} + \frac{1}{5}x\right)e^{5x} - \frac{1}{5}\cdot\left[(2x+1)\cdot\frac{1}{5}e^{5x} - \int (2x+1)'\cdot\frac{1}{5}e^{5x} dx\right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25}\int e^{5x} dx =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25} \cdot \frac{1}{5}e^{5x} + C$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left[(2x+1) \cdot \frac{1}{5}e^{5x} - \int (2x+1)' \cdot \frac{1}{5}e^{5x} \, dx \right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} \, dx =$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)^x dx =$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25} \cdot \frac{1}{5}e^{5x} + C =$$

$$= \left(\qquad \qquad \right)e^{5x}$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left[(2x+1) \cdot \frac{1}{5}e^{5x} - \int (2x+1)' \cdot \frac{1}{5}e^{5x} \, dx \right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} \, dx =$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right) dx =$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25} \cdot \frac{1}{5}e^{5x} + C =$$

$$= \left(\frac{1}{5}x^2\right)e^{5x}$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left[(2x+1) \cdot \frac{1}{5}e^{5x} - \int (2x+1)' \cdot \frac{1}{5}e^{5x} \, dx \right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} \, dx =$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right) dx =$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25} \cdot \frac{1}{5}e^{5x} + C =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x\right)e^{5x}$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left[(2x+1) \cdot \frac{1}{5}e^{5x} - \int (2x+1)' \cdot \frac{1}{5}e^{5x} \, dx \right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} \, dx =$$

 $=\left(\frac{1}{5}x^2+\frac{1}{5}x\right)e^{5x}-\frac{1}{5}\cdot\int(2x+1)\cdot\left(\frac{1}{5}e^{5x}\right)dx=$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25} \cdot \frac{1}{5}e^{5x} + C =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{3}{125}\right)e^{5x}$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left[(2x+1) \cdot \frac{1}{5}e^{5x} - \int (2x+1)' \cdot \frac{1}{5}e^{5x} \, dx \right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} \, dx =$$

 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right) dx =$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25} \cdot \frac{1}{5}e^{5x} + C =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{3}{125}\right)e^{5x} + C$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \left[(2x+1) \cdot \frac{1}{5}e^{5x} - \int (2x+1)' \cdot \frac{1}{5}e^{5x} \, dx \right] =$$

$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right)e^{5x} + \frac{1}{5}\int 2 \cdot \frac{1}{5}e^{5x} \, dx =$$

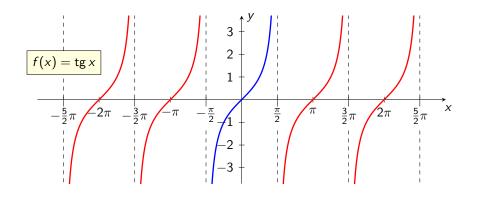
 $= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right)e^{5x} - \frac{1}{5} \cdot \int (2x+1) \cdot \left(\frac{1}{5}e^{5x}\right)^{x} dx =$

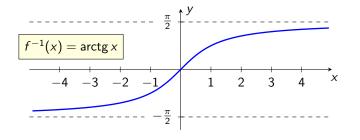
$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right)e^{5x} + \frac{2}{25} \cdot \frac{1}{5}e^{5x} + C =$$

$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{3}{125}\right)e^{5x} + C, \quad C \in \mathbb{R}$$

inverzna funkcija

Funkcija tangens i njezina





Funkcija

$$f:\left\langle -\frac{\pi}{2},\frac{\pi}{2}\right
angle
ightarrow \mathbb{R},\quad f(x)=\operatorname{tg} x$$

je bijekcija i ima inverznu funkciju

$$f^{-1}: \mathbb{R} o \left\langle -rac{\pi}{2}, rac{\pi}{2}
ight
angle, \quad f^{-1}(x) = \operatorname{arctg} x.$$

Derivacija inverzne funkcije jednaka je

$$\left(\operatorname{arctg} x\right)' = \frac{1}{x^2 + 1}$$

odnosno

$$\int \frac{\mathrm{d}x}{x^2 + 1} = \operatorname{arctg} x + C, \quad C \in \mathbb{R}.$$

peti zadatak

Riješite neodređeni integral $\int \frac{x^2}{x^6+1} dx$.

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x =$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \left| \qquad x^3 = t \right|$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \left| \qquad x^3 = t \, \middle/ \, \right|$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \left| \begin{array}{c} x^3 = t / \\ 3x^2 \end{array} \right|$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \left| \begin{array}{c} x^3 = t / \\ 3x^2 \, \mathrm{d}x \end{array} \right|$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \left[\begin{array}{c} x^3 = t / \\ 3x^2 \, \mathrm{d}x = \end{array} \right]$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \left[\begin{array}{c} x^3 = t / \\ 3x^2 \, \mathrm{d}x = \mathrm{d}t \end{array} \right]$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} dx = \begin{bmatrix} x^3 = t / \\ 3x^2 dx = dt \end{bmatrix}$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \left[\begin{array}{c} x^3 = t / \\ 3x^2 \, \mathrm{d}x = \mathrm{d}t \end{array} \right] = \int$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \left[\begin{array}{c} x^3 = t / \\ 3x^2 \, \mathrm{d}x = \mathrm{d}t \end{array} \right] = \int \frac{1}{t^2 + 1} \, \mathrm{d}x$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \left[\begin{array}{c} x^3 = t / \\ 3x^2 \, \mathrm{d}x = \mathrm{d}t \end{array} \right] = \int \frac{\frac{\mathrm{d}t}{3}}{t^2 + 1}$$

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \begin{bmatrix} x^3 = t / \\ 3x^2 \, \mathrm{d}x = \mathrm{d}t \end{bmatrix} = \int \frac{\frac{\mathrm{d}t}{3}}{t^2 + 1} = \frac{1}{3} \int \frac{\mathrm{d}t}{t^2 + 1}$$

Riješite neodređeni integral $\int \frac{x^2}{x^6+1} dx$.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \begin{bmatrix} x^3 = t / \\ 3x^2 \, \mathrm{d}x = \mathrm{d}t \end{bmatrix} = \int \frac{\frac{\mathrm{d}t}{3}}{t^2 + 1} = \frac{1}{3} \int \frac{\mathrm{d}t}{t^2 + 1} =$$

$$\frac{\mathrm{d}x}{x^2 + 1} = \arctan x + C$$

8/16

Riješite neodređeni integral
$$\int \frac{x^2}{x^6+1} dx$$
.

$$\int \frac{x^2}{x^6 + 1} dx = \begin{bmatrix} x^3 = t / \\ 3x^2 dx = dt \end{bmatrix} = \int \frac{\frac{dt}{3}}{t^2 + 1} = \frac{1}{3} \int \frac{dt}{t^2 + 1} = \frac{dt}{t^2 + 1} =$$

$$=\frac{1}{3} \operatorname{arctg} t$$

Riješite neodređeni integral $\int \frac{x^2}{x^6+1} dx$.

$$\int \underline{x^2}$$

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

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \begin{bmatrix} x^3 = t / \\ 3x^2 \, \mathrm{d}x = \mathrm{d}t \end{bmatrix} = \int \frac{\frac{\mathrm{d}t}{3}}{t^2 + 1} = \frac{1}{3} \int \frac{\mathrm{d}t}{t^2 + 1} =$$

$$\int 3x^2 \, \mathrm{d}x = c$$

$$= \frac{1}{3} \operatorname{arctg} t + C$$

$$\frac{\mathrm{d}x}{x^2 + 1} = \arctan x + C$$

8/16

Riješite neodređeni integral $\int \frac{x^2}{x^6+1} dx$.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \begin{bmatrix} x^3 = t / ' \\ 3x^2 \, \mathrm{d}x = \mathrm{d}t \end{bmatrix} = \int \frac{\frac{\mathrm{d}t}{3}}{t^2 + 1} = \frac{1}{3} \int \frac{\mathrm{d}t}{t^2 + 1}$$

$$\int \frac{x}{x^6 + 1} \, \mathrm{d}x = \left[\begin{array}{c} x \\ 3x^2 \, \mathrm{d} \end{array} \right]$$

$$x^6 + 1$$
 $\int 3x^2 dx =$

$$= \frac{1}{3} \arctan t + C = \frac{1}{3} \arctan x^3 + C$$

$$\frac{\mathrm{d}t}{3}$$

$$=\frac{1}{3}$$

$$\frac{\mathrm{d}t}{t^2 + }$$

$$\frac{\mathrm{d}x}{x^2 + 1} = \operatorname{arctg} x + C$$

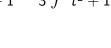
Riješite neodređeni integral $\int \frac{x^2}{x^6+1} dx$.

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \begin{bmatrix} x^3 = t / ' \\ 3x^2 \, \mathrm{d}x = \mathrm{d}t \end{bmatrix} = \int \frac{\frac{\mathrm{d}t}{3}}{t^2 + 1} = \frac{1}{3} \int \frac{\mathrm{d}t}{t^2 + 1}$$

$$\int \frac{x^2}{x^6 + 1} \, \mathrm{d}x = \begin{bmatrix} x^3 = 0 \\ 3x^2 \, \mathrm{d}x = 0 \end{bmatrix}$$

$$\int x^2 + 1 \qquad \left[\int 3x \, dx = dt \right]$$

$$=rac{1}{3}rctg\ t+C=rac{1}{3}rctg\ x^3+C, \quad C\in\mathbb{R}$$



$$=\frac{1}{3}\int\frac{\mathrm{d}t}{t^2+1}$$

šesti zadatak

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + 5}$.

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} =$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\Big(\qquad \Big)}$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3(x^2)}$$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + 5}$. $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3(x^2 + 1)}$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)}$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3(x^2 + \frac{5}{2})} = \frac{1}{3} \int$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{dx}{3x^2 + 5} = \int \frac{dx}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{dx}{3\left$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{dx}{3x^2 + 5} = \int \frac{dx}{3(x^2 + \frac{5}{3})} = \frac{1}{3} \int \frac{dx}{1 + \frac{1}{3}}$$

Zadatak 6

Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.

$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{dx}{3x^2 + 5} = \int \frac{dx}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{dx}{x^2 + \frac{1}{3}}$$

Zadatak 6

Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.

$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2}$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2} =$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2} =$$

$$= \frac{1}{3} \cdot \frac{1}{\sqrt{\frac{5}{3}}} \operatorname{arctg} \frac{x}{\sqrt{\frac{5}{3}}}$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2} =$$

$$= \frac{1}{3} \cdot \frac{1}{\sqrt{\frac{5}{3}}} \operatorname{arctg} \frac{x}{\sqrt{\frac{5}{3}}} + C$$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + 5}$. $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2} =$$

$$=\frac{1}{3}\cdot\frac{1}{\sqrt{\frac{5}{2}}}\operatorname{arctg}\frac{x}{\sqrt{\frac{5}{2}}}+C=\frac{\sqrt{3}}{3\sqrt{5}}$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2} =$$

$$= \frac{1}{3} \cdot \frac{1}{\sqrt{\frac{5}{3}}} \operatorname{arctg} \frac{x}{\sqrt{\frac{5}{3}}} + C = \frac{\sqrt{3}}{3\sqrt{5}} \operatorname{arctg} \frac{\sqrt{3}x}{\sqrt{5}}$$

Zadatak 6
Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2} =$$

$$= \frac{1}{3} \cdot \frac{1}{\sqrt{\frac{5}{3}}} \operatorname{arctg} \frac{x}{\sqrt{\frac{5}{3}}} + C = \frac{\sqrt{3}}{3\sqrt{5}} \operatorname{arctg} \frac{\sqrt{3}x}{\sqrt{5}} + C$$

Zadatak 6

Riješite neodređeni integral
$$\int \frac{dx}{3x^2 + 5}$$
.

$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$
Riešenie

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2} =$$

$$=\frac{1}{3}\cdot -$$

$$=\frac{1}{3}\cdot\frac{1}{\sqrt{\frac{5}{3}}}$$

$$\sqrt{\frac{5}{3}}$$

 $\frac{\sqrt{3}}{3\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{15}}{3 \cdot 5} = \frac{\sqrt{15}}{15}$

$$3\sqrt{\frac{5}{3}}$$

$$=\frac{1}{3}\cdot\frac{1}{\sqrt{\frac{5}{3}}}\arctan\frac{x}{\sqrt{\frac{5}{3}}}+C=\frac{\sqrt{3}}{3\sqrt{5}}\arctan\frac{\sqrt{3}x}{\sqrt{5}}+C=$$

$$+\frac{3}{3}$$

$$C = \frac{\sqrt{3}}{2}$$
 a

$$\bar{S} = \frac{\sqrt{2}}{2}$$

$$\sqrt{3}$$

$$+\sqrt{\frac{5}{3}}$$

$$\int x^2 + \sqrt{\frac{5}{3}}$$

$$\int x^2 + \sqrt{\frac{5}{3}} + C = \frac{\sqrt{3}x}{\sqrt{3}} + \frac{\sqrt{3}x}{\sqrt{3}} +$$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + 5}$. $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2} =$$

$$=rac{1}{3}\cdotrac{1}{\sqrt{rac{5}{3}}}$$
 al

$$=\frac{1}{3}\cdot\frac{1}{\sqrt{\frac{5}{3}}}$$
 ar

$$\sqrt{\frac{5}{3}} \qquad \sqrt{\frac{5}{3}}$$

$$= \frac{\sqrt{15}}{15} \operatorname{arctg} \frac{\sqrt{15}}{5} x$$

$$= \frac{1}{3} \cdot \frac{1}{\sqrt{\frac{5}{3}}} \operatorname{arctg} \frac{x}{\sqrt{\frac{5}{3}}} + C = \frac{\sqrt{3}}{3\sqrt{5}} \operatorname{arctg} \frac{\sqrt{3}x}{\sqrt{5}} + C =$$

 $\frac{\sqrt{3}}{3\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{15}}{3 \cdot 5} = \frac{\sqrt{15}}{15} \qquad \frac{\sqrt{3}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{15}}{5}$

$$\arctan \frac{x}{\sqrt{\frac{5}{3}}} + C =$$

$$\frac{\sqrt{3}}{2}$$
 arc

$$\frac{\sqrt{3}}{\sqrt{2}}$$

$$\frac{\sqrt{5}}{\sqrt{5}} + C =$$

$$\sqrt{3}$$

$$\frac{\sqrt{3}}{\sqrt{5}}$$
 arctg $\frac{\sqrt{}}{\sqrt{}}$

$$\frac{\sqrt{3}x}{\sqrt{5}} + C =$$

$$\frac{3}{5}$$
 arctg $\frac{\sqrt{3}x}{\sqrt{5}} + C =$

$$\cot \frac{1}{\sqrt{5}} + C =$$

$$\sqrt{3}$$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + 5}$. $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$ Rješenje

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{x^2}{3}\right)}$$

$$=rac{1}{3}\cdotrac{1}{\sqrt{rac{5}{2}}}$$
 ar

$$=rac{1}{3}\cdotrac{1}{\sqrt{rac{5}{3}}}$$
 ard

$$\arctan \frac{x}{\sqrt{\frac{5}{2}}} + C = 1$$

$$=\frac{1}{3}\cdot\frac{1}{\sqrt{\frac{5}{3}}}\arctan\frac{x}{\sqrt{\frac{5}{3}}}+C=\frac{\sqrt{3}}{3\sqrt{5}}\arctan\frac{\sqrt{3}x}{\sqrt{5}}+C=$$

 $\frac{\sqrt{3}}{3\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{15}}{3 \cdot 5} = \frac{\sqrt{15}}{15} \qquad \frac{\sqrt{3}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{15}}{5}$

$$\sqrt{5}$$
 + C

$$\sqrt{3}$$

$$= \frac{\arctan \sqrt{\frac{5}{3}}}{\sqrt{\frac{5}{3}}} + C = \frac{1}{3\sqrt{5}} \operatorname{arctg} = \frac{\sqrt{15}}{\sqrt{5}}$$

$$= \frac{\sqrt{15}}{15} \operatorname{arctg} = \frac{\sqrt{15}}{5} x + C$$

$$\frac{\sqrt{3}}{\sqrt{5}}$$
 arctg

$$x^2 + \sqrt{$$

$$\int \frac{\mathrm{d}x}{\sqrt{5}^2} =$$

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2} =$$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + 5}$. $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$ Rješenje

$$\int \frac{\mathrm{d}x}{3x^2 + 5} = \int \frac{\mathrm{d}x}{3\left(x^2 + \frac{5}{3}\right)} = \frac{1}{3} \int \frac{\mathrm{d}x}{x^2 + \sqrt{\frac{5}{3}}^2} =$$

$$\int 3x^2 + 5 = \int 3\left(x^2 + \frac{5}{3}\right)^{-1}$$

$$= \frac{1}{3} \cdot \frac{1}{\sqrt{\frac{5}{3}}} \operatorname{arctg} \frac{x}{\sqrt{\frac{5}{3}}} + C = \frac{\sqrt{3}}{3\sqrt{5}} \operatorname{arctg} \frac{\sqrt{3}x}{\sqrt{5}} + C =$$

$$= \frac{1}{3} \cdot \frac{1}{\sqrt{\frac{5}{2}}} \operatorname{arctg} \frac{x}{\sqrt{\frac{5}{2}}} + C = \frac{3}{3}$$

$$= \frac{1}{3} \cdot \frac{1}{\sqrt{\frac{5}{3}}} \operatorname{arctg} \frac{x}{\sqrt{\frac{5}{3}}} + C = \frac{3}{3}$$

$$= \frac{1}{3} \cdot \frac{1}{\sqrt{\frac{5}{3}}} \operatorname{arctg} \frac{x}{\sqrt{\frac{5}{3}}} + C = \frac{3}{3}$$

$$= \frac{1}{3} \cdot \frac{1}{\sqrt{\frac{5}{3}}} \operatorname{arctg} \frac{x}{\sqrt{\frac{5}{3}}} + C = \frac{1}{3}$$

 $\frac{\sqrt{3}}{3\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{15}}{3 \cdot 5} = \frac{\sqrt{15}}{15} \qquad \frac{\sqrt{3}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{15}}{5}$

$$\frac{\sqrt{3}}{3\sqrt{5}}$$

$$\frac{3}{\sqrt{5}}$$
 arctg $\frac{\sqrt{}}{\sqrt{}}$

$$\sqrt{5}$$
 $\sqrt{5}$

$$=rac{\sqrt{15}}{15}rctgrac{\sqrt{15}}{5}x+C, \quad C\in\mathbb{R}$$



sedmi zadatak

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{x^2 - 3}$.

$$\frac{1}{v^2 - 3}$$

$$\frac{1}{x^2 - 3} = \frac{1}{\left(x - \sqrt{3}\right)\left(x + \sqrt{3}\right)}$$

Zadatak 7

Riješite neodređeni integral
$$\int \frac{dx}{x^2 - 3}$$
.

$$\int \frac{dx}{ax + b} = \frac{1}{a} \ln|ax + b| + C$$

$$\frac{1}{x^2 - 3} = \frac{1}{(x - \sqrt{3})(x + \sqrt{3})} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}}$$

Zadatak 7

Riješite neodređeni integral
$$\int \frac{dx}{x^2 - 3}$$
.

$$\int \frac{dx}{ax + b} = \frac{1}{a} \ln|ax + b| + C$$

$$\frac{\mathrm{d}x}{-3}$$
.

$$\frac{1}{x^2 - 3} = \frac{1}{\left(x - \sqrt{3}\right)\left(x + \sqrt{3}\right)} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$$

Zadatak 7

Riješite neodređeni integral
$$\int \frac{dx}{x^2 - 3}$$
.

$$\int \frac{dx}{ax + b} = \frac{1}{a} \ln|ax + b| + C$$

$$\frac{1}{x^2 - 3} = \frac{1}{\left(x - \sqrt{3}\right)\left(x + \sqrt{3}\right)} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$$

$$x^2 - 3$$
 $(x - \sqrt{3})(x + \sqrt{3})$ $x - \sqrt{3}$ $x + \sqrt{3}$

 $(x-\sqrt{3})(x+\sqrt{3})$

Zadatak 7

Riješite neodređeni integral
$$\int \frac{dx}{x^2 - 3}$$
.

$$\int \frac{dx}{ax + b} = \frac{1}{a} \ln|ax + b| + C$$

$$\frac{1}{x^2 - 3} = \frac{1}{(x - \sqrt{3})(x + \sqrt{3})} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$$
$$= \frac{A(x + \sqrt{3})}{(x - \sqrt{3})(x + \sqrt{3})}$$

Zadatak 7

Riješite neodređeni integral
$$\int \frac{dx}{x^2 - 3}$$
.

$$\int \frac{dx}{ax + b} = \frac{1}{a} \ln|ax + b| + C$$

$$\frac{1}{x^2 - 3} = \frac{1}{\left(x - \sqrt{3}\right)\left(x + \sqrt{3}\right)} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$$

$$x^{2} - 3 \quad (x - \sqrt{3})(x + \sqrt{3}) \quad x - \sqrt{3} \quad x + \sqrt{3}$$

$$= \frac{A(x + \sqrt{3}) + (x - \sqrt{3})(x + \sqrt{3})}{(x - \sqrt{3})(x + \sqrt{3})}$$

Zadatak 7

Riješite neodređeni integral
$$\int \frac{dx}{x^2 - 3}$$
.

$$\int \frac{dx}{ax + b} = \frac{1}{a} \ln|ax + b| + C$$

$$\frac{1}{x^2 - 3} = \frac{1}{\left(x - \sqrt{3}\right)\left(x + \sqrt{3}\right)} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$$

$$= \frac{A(x + \sqrt{3}) + B(x - \sqrt{3})}{\left(x - \sqrt{3}\right)\left(x + \sqrt{3}\right)}$$

Zadatak 7

Riješite neodređeni integral
$$\int \frac{dx}{x^2 - 3}$$
.

$$\int \frac{dx}{ax + b} = \frac{1}{a} \ln|ax + b| + C$$

neodređeni integral
$$\int \frac{\mathrm{d}x}{x^2}$$

$$\frac{1}{x^2 - 3} = \frac{1}{(x - \sqrt{3})(x + \sqrt{3})} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$$
$$= \frac{A(x + \sqrt{3}) + B(x - \sqrt{3})}{(x - \sqrt{3})(x + \sqrt{3})}$$

$$1 = A(x + \sqrt{3}) + B(x - \sqrt{3})$$

Zadatak 7
$$\text{Riješite neodređeni integral } \int \frac{\mathrm{d}x}{x^2-3}.$$
 Rješenje

$$\frac{1}{x^2 - 3} = \frac{1}{(x - \sqrt{3})(x + \sqrt{3})} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$$

$$= \frac{A(x + \sqrt{3}) + B(x - \sqrt{3})}{(x - \sqrt{3})(x + \sqrt{3})}$$

$$1 = A(x + \sqrt{3}) + B(x - \sqrt{3})$$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$$

 $= \frac{A(x+\sqrt{3}) + B(x-\sqrt{3})}{(x-\sqrt{3})(x+\sqrt{3})}$

 $1 = A(x + \sqrt{3}) + B(x - \sqrt{3})$

$$\frac{1}{x^2}$$

$$\frac{1}{X^2}$$

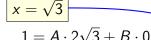
$$\frac{1}{x^2}$$

$$\frac{1}{x^2}$$

 $\frac{1}{x^2 - 3} = \frac{1}{(x - \sqrt{3})(x + \sqrt{3})} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$

Rješenje

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{\sqrt{2}-2}$.





$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{\sqrt{2}-3}$.

$$\frac{1}{1} = \frac{1}{1}$$

$$\frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$$

$$\frac{1}{x^2 - 3} = \frac{1}{(x - \sqrt{3})(x + \sqrt{3})} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$$

$$\sqrt{3}$$
) $(x+\sqrt{3})$

$$\overline{\sqrt{3}}$$
 = $\overline{x-\sqrt{x}}$

$$=\frac{A(x-x)}{(x-x)^2}$$

$$=\frac{A(x)}{(x)}$$

$$\frac{(x-1)^{-1}}{(x-1)^{-1}}$$

$$\overline{3}$$
) $(x+\sqrt{3})$

$$1 = A \cdot 2\sqrt{3} + B \cdot 0$$
$$A = \frac{1}{2\sqrt{3}}$$

$$= \frac{A(x+\sqrt{3}) + B(x-\sqrt{3})}{(x-\sqrt{3})(x+\sqrt{3})}$$

$$1 = A(x+\sqrt{3}) + B(x-\sqrt{3})$$

$$x = \sqrt{}$$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{\sqrt{2}-3}$.

Rješenje

$$\frac{1}{x^2 - 3} = \frac{1}{\left(x - \sqrt{3}\right)\left(x + \sqrt{3}\right)} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} = \frac{A}{x - \sqrt{3}} + \frac{B}{x - \sqrt{3}} = \frac{A}{x - \sqrt{3}} + \frac{B}{x$$

$$\chi^2$$

$$A(x+\sqrt{3}) + B(x-\sqrt{3})$$

 $=\frac{A(x+\sqrt{3})+B(x-\sqrt{3})}{(x-\sqrt{3})(x+\sqrt{3})}$ $1 = A \cdot 2\sqrt{3} + B \cdot 0$

$$1 = A$$

$$A = -$$

$$= \frac{(x - \sqrt{3})(x + \sqrt{3})}{(x - \sqrt{3})(x + \sqrt{3})}$$

$$1 \stackrel{\checkmark}{=} A(x + \sqrt{3}) + B(x - \sqrt{3})$$

$$A = \frac{1}{2}$$

$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{x^2-3}$.

Rješenje

$$\frac{1}{x^2-3} = \frac{1}{(x-\sqrt{3})(x-\sqrt{3})}$$

$$\frac{1}{x^2 - 3} = \frac{1}{(x - \sqrt{3})(x + \sqrt{3})} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$$

$$x = \sqrt{3}$$

$$1 = A \cdot 2\sqrt{3} + B \cdot 0$$

$$= A \cdot 2\sqrt{3} + B \cdot 0$$
$$= \frac{1}{2\sqrt{3}}$$

 $1 = A \cdot 0 + B \cdot (-2\sqrt{3})$

$$A = \frac{1}{2\sqrt{3}}$$

$$A = \frac{1}{2\sqrt{3}}$$

$$x = \sqrt{3}$$

$$1 = A \cdot 2\sqrt{3} + B \cdot 0$$

$$A(x+\sqrt{3})$$

$$=\frac{A(x+\sqrt{3})+B(x-\sqrt{3})}{(x-\sqrt{3})(x+\sqrt{3})}$$

$$\frac{\sqrt{3}}{\sqrt{3}}$$

$$\sqrt{3}$$
) $(x + \sqrt{3})$

$$(x - \sqrt{3})(x + \sqrt{3})$$

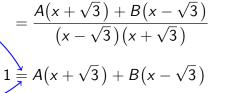
$$1 \stackrel{\checkmark}{=} A(x + \sqrt{3}) + B(x - \sqrt{3})$$

$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{x^2-3}$. Rješenje

$$\frac{1}{x^2 - 3} = \frac{1}{\left(x - \sqrt{3}\right)\left(x + \sqrt{3}\right)} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} =$$

$$x = \sqrt{3}$$



$$1 = \lambda$$

$$A = \frac{1}{2\sqrt{3}}$$

 $1 = A \cdot 0 + B \cdot (-2\sqrt{3})$

$$1 = A \cdot 2\sqrt{3} + B \cdot 0$$

$$A = \frac{1}{2\sqrt{3}}$$

$$x = -\sqrt{3}$$

$$A = \frac{1}{2\sqrt{3}}$$

$$x = -\sqrt{3}$$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{x^2-3}$.

Zadatak 7

$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$

Rješenje

$$\frac{1}{x^2 - 3} = \frac{1}{\left(x - \sqrt{3}\right)\left(x + \sqrt{3}\right)} = \frac{A}{x - \sqrt{3}} + \frac{B}{x + \sqrt{3}} = \frac{A}{x + \sqrt{3}} = \frac{A}{x$$

$$\frac{1}{x}$$

$$\frac{7}{-\sqrt{3}} + \frac{2}{x+\sqrt{3}} =$$

$$\frac{(x+\sqrt{3}) + B(x-\sqrt{3})}{(x-\sqrt{3})(x+\sqrt{3})}$$

 $1 = A \cdot 2\sqrt{3} + B \cdot 0$

$$A(x +$$

$$=\frac{A(x+\sqrt{3})+B(x-\sqrt{3})}{(x-\sqrt{3})(x+\sqrt{3})}$$

$$A = \frac{1}{2}$$

$$= \frac{A(x+\sqrt{3})+B(x-\sqrt{3})}{(x-\sqrt{3})(x+\sqrt{3})}$$

$$1 = A(x+\sqrt{3})+B(x-\sqrt{3})$$

$$A=\frac{1}{2}$$

$$A = \frac{1}{2\sqrt{3}}$$

$$x = -\sqrt{3}$$

$$8(x-\sqrt{3})$$

$$A = \frac{1}{2\sqrt{3}}$$

$$x = -\sqrt{3}$$

 $1 = A \cdot 0 + B \cdot \left(-2\sqrt{3}\right)$

$$A(x+\sqrt{3})$$

$$-\sqrt{3}$$
)

$$)+B(x-\sqrt{3})$$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$$

 $\int \frac{\mathrm{d}x}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) \mathrm{d}x$

$$ax + b| + C$$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$$

$$\int \frac{\mathrm{d}x}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) \mathrm{d}x =$$

$$= \frac{1}{2\sqrt{3}} \int \frac{\mathrm{d}x}{x - \sqrt{3}}$$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$$

$$\int \frac{dx}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) dx =$$

$$=\frac{1}{2\sqrt{3}}\int \frac{\mathrm{d}x}{x-\sqrt{3}}-\frac{1}{2\sqrt{3}}\int \frac{\mathrm{d}x}{x+\sqrt{3}}$$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$$

$$\int \frac{\mathrm{d}x}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) \mathrm{d}x =$$

$$= \frac{1}{2\sqrt{3}} \int \frac{\mathrm{d}x}{x - \sqrt{3}} - \frac{1}{2\sqrt{3}} \int \frac{\mathrm{d}x}{x + \sqrt{3}} =$$
$$= \frac{1}{2\sqrt{3}}$$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$$

$$\int \frac{\mathrm{d}x}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) \mathrm{d}x =$$

$$=\frac{1}{2\sqrt{3}}\int\frac{\mathrm{d}x}{x-\sqrt{3}}-\frac{1}{2\sqrt{3}}\int\frac{\mathrm{d}x}{x+\sqrt{3}}=$$

 $=\frac{1}{2\sqrt{3}}\ln |x-\sqrt{3}|$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$$

$$\int \frac{\mathrm{d}x}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) \mathrm{d}x =$$

$$=\frac{1}{2\sqrt{3}}\int\frac{\mathrm{d}x}{x-\sqrt{3}}-\frac{1}{2\sqrt{3}}\int\frac{\mathrm{d}x}{x+\sqrt{3}}=$$

 $=\frac{1}{2\sqrt{3}}\ln |x-\sqrt{3}|-\frac{1}{2\sqrt{3}}$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$$

$$\int \frac{\mathrm{d}x}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) \mathrm{d}x =$$

$$= \frac{1}{2\sqrt{3}} \int \frac{dx}{x - \sqrt{3}} - \frac{1}{2\sqrt{3}} \int \frac{dx}{x + \sqrt{3}} =$$

$$= \frac{1}{2\sqrt{3}} \ln|x - \sqrt{3}| - \frac{1}{2\sqrt{3}} \ln|x + \sqrt{3}|$$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a} \ln|ax+b| + C$$

$$\int \frac{\mathrm{d}x}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) \mathrm{d}x =$$

 $= \frac{1}{2\sqrt{3}} \int \frac{dx}{x - \sqrt{3}} - \frac{1}{2\sqrt{3}} \int \frac{dx}{x + \sqrt{3}} =$

$$=rac{1}{2\sqrt{3}}\ln \left| x-\sqrt{3}
ight| -rac{1}{2\sqrt{3}}\ln \left| x+\sqrt{3}
ight| +C$$

$$\ln|a| - \ln|b| = \ln\left|\frac{|a|}{|b|} = \ln\left|\frac{a}{b}\right|$$

$$\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a}\ln|ax+b| + C$$

$$\int \frac{\mathrm{d}x}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) \mathrm{d}x =$$

$$= \frac{1}{2\sqrt{3}} \int \frac{\mathrm{d}x}{x - \sqrt{3}} - \frac{1}{2\sqrt{3}} \int \frac{\mathrm{d}x}{x + \sqrt{3}} =$$

$$= \frac{1}{2\sqrt{3}} \ln |x - \sqrt{3}| - \frac{1}{2\sqrt{3}} \ln |x + \sqrt{3}| + C =$$

$$= \frac{1}{2\sqrt{3}} \ln \left| \frac{x - \sqrt{3}}{x + \sqrt{3}} \right| + C$$

$$= \frac{1}{2\sqrt{3}} \ln \left| x - \sqrt{3} \right| - \frac{1}{2\sqrt{3}} \ln \left| x + \sqrt{3} \right| + C =$$

$$= \frac{1}{2\sqrt{3}} \ln \left| \frac{x - \sqrt{3}}{x + \sqrt{3}} \right| + C, \quad C \in \mathbb{R}$$

 $=\frac{1}{2\sqrt{3}}\int \frac{dx}{x-\sqrt{3}} - \frac{1}{2\sqrt{3}}\int \frac{dx}{x+\sqrt{3}} =$

 $\int \frac{dx}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) dx =$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

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$$= \frac{1}{2\sqrt{3}} \ln \left| x - \sqrt{3} \right| - \frac{1}{2\sqrt{3}} \ln \left| x + \sqrt{3} \right| + C =$$

 $=\frac{1}{2\sqrt{3}}\int \frac{dx}{x-\sqrt{3}} - \frac{1}{2\sqrt{3}}\int \frac{dx}{x+\sqrt{3}} =$

$$=\frac{1}{2\sqrt{3}}\ln\left|\frac{x-\sqrt{3}}{x+\sqrt{3}}\right|+C,\quad C\in\mathbb{R}$$

 $\int \frac{\mathrm{d}x}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) \mathrm{d}x =$

$$\int \frac{\mathrm{d}x}{x^2 - 3} = \int \left(\frac{\frac{1}{2\sqrt{3}}}{x - \sqrt{3}} + \frac{-\frac{1}{2\sqrt{3}}}{x + \sqrt{3}} \right) \mathrm{d}x =$$

 $\left| \int \frac{\mathrm{d}x}{a^2 - x^2} = \frac{1}{2a} \ln \left| \frac{a + x}{a - x} \right| + C \right| \left| \int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$

$$=rac{1}{2\sqrt{3}}\ln\left|rac{x-\sqrt{3}}{x+\sqrt{3}}
ight|+C,\quad C\in\mathbb{R}$$

 $=\frac{1}{2\sqrt{3}}\int \frac{dx}{x-\sqrt{3}} - \frac{1}{2\sqrt{3}}\int \frac{dx}{x+\sqrt{3}} =$

 $=\frac{1}{2\sqrt{3}}\ln|x-\sqrt{3}|-\frac{1}{2\sqrt{3}}\ln|x+\sqrt{3}|+C=$

osmi zadatak

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + x + 4}$.

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + x + 4}$.

$$3x^2 + x + 4 =$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^2 + x + 4 = 3 \cdot \left($$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^2 + x + 4 = 3 \cdot \left(x^2\right)$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^2 + x + 4 = 3 \cdot \left(x^2 + \frac{1}{2}\right)$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^2 + x + 4 = 3 \cdot \left(x^2 + \frac{1}{3}x\right)$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^2 + x + 4 = 3 \cdot \left(x^2 + \frac{1}{3}x + \right)$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^2 + x + 4 = 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{4}{3}\right)$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left($$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^{2} + \frac{1}{3}x\right)$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{1$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.
Rješenje

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{1}{36}\right)$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
. Rješenje

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36}\right)$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36} + \frac{4}{3}\right)$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36} + \frac{4}{3}\right) =$$

$$= 3 \cdot \left($$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36} + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(\left(x + \frac{1}{6}\right)^{2}\right)$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{3x^2 + x + 4}$$
.

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36} + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(\left(x + \frac{1}{6}\right)^{2} + \frac{47}{36}\right)$$

Zadatak 8 Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + x + 4}$.

$$\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$$

Rješenje

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{1}{36}\right) - \frac{1}{36}$$

$$= 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36} + \frac{4}{3} \right) =$$

= 3 ·

$$=3\cdot\left(\left(x+\frac{1}{6}\right)^2+\frac{47}{36}\right)=$$

Zadatak 8 Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + x + 4}$.

$$\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$$

$$3x^{2} + x + 4 = 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^{2} + \frac{1}{3}x + \frac{1}{3}\right) - \frac{1}{3}x + \frac{$$

$$= 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36} + \frac{4}{3} \right) =$$

 $=3\cdot\left(\left(x+\frac{1}{6}\right)^2\right)$

$$=3\cdot\left(\left(x+\frac{1}{6}\right)^2+\frac{47}{36}\right)=$$

Zadatak 8 Riješite neodređeni integral $\int \frac{\mathrm{d}x}{3x^2 + x + 4}$.

$$\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$$

Rješenje

$$3x^2 + x + 4 = 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(\left(x - \right) \right)$$

$$=3\cdot\left(\left(x+\frac{1}{6}\right)^2+\frac{47}{36}\right)=$$

 $=3\cdot\left(\left(x+\frac{1}{6}\right)^2+\right)$

$$\frac{\cancel{1}}{36}$$

$$= 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36} + \frac{4}{3} \right) =$$

Zadatak 8
$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$$
Riješite neodređeni integral $\int \frac{dx}{3x^2 + x + 4}$.

$$3x^2 + x + 4 = 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{4}{3}\right) =$$

$$= 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36} + \frac{4}{3} \right) =$$

$$= 3 \cdot \left(\left(x \right) \right)$$

$$= 3 \cdot \left(\left(x + \right) \right)$$

$$+\frac{1}{36}$$

$$\frac{1}{6}$$
 +

$$\frac{4}{3}$$

$$\left(\frac{7}{7}\right)^2$$

$$= 3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \frac{47}{36} \right) =$$

$$= 3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)$$

$$\frac{x}{a} + C$$

$$\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$$

$$=\frac{1}{3}\int \frac{\mathrm{d}x}{\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2}$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

 $\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot \left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \left[\begin{array}{c} x + \frac{1}{6} = t \\ \end{array}\right]$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$

$$= \frac{1}{3} \int \frac{\mathrm{d}x}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \left[x + \frac{1}{6} = t / \frac{1}{6} \right]$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / \\ dx \end{bmatrix}$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

 $\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot \left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t/' \\ dx = \end{bmatrix}$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$

 $\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot\left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / \\ dx = dt \end{bmatrix}$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

 $\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)} =$

$$=\frac{1}{3}\int \frac{\mathrm{d}x}{\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2}=\begin{bmatrix}x+\frac{1}{6}=t/\\\mathrm{d}x=\mathrm{d}t\end{bmatrix}$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$

 $\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot\left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$

$$= \frac{1}{3} \int \frac{\mathrm{d}x}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{\mathrm{d}x}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix}$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

 $\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot \left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$

$$= \frac{1}{3} \int \frac{\mathrm{d}x}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{\mathrm{d}t}{}$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

$$= \frac{1}{3} \int \frac{\mathrm{d}x}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{\mathrm{d}t}{t^2}$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

$$=\frac{1}{3}\int\frac{\mathrm{d}t}{t^2+\left(\frac{\sqrt{47}}{6}\right)^2}$$

 $=\frac{1}{3}\int \frac{\mathrm{d}x}{\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2}=\left[\begin{array}{c}x+\frac{1}{6}=t\left/'\right.\\\mathrm{d}x=\mathrm{d}t\end{array}\right]=$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

$$=\frac{1}{3}\int\frac{\mathrm{d}t}{t^2+\left(\frac{\sqrt{47}}{6}\right)^2}=\frac{1}{3}\cdot$$

 $= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / \\ dx = dt \end{bmatrix} =$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

$$=\frac{1}{3}\int \frac{\mathrm{d}t}{t^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \frac{1}{3} \cdot \frac{1}{\frac{\sqrt{47}}{6}} \operatorname{arctg} \frac{t}{\frac{\sqrt{47}}{6}}$$

 $= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / \\ dx = dt \end{bmatrix} =$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / t \\ dx = dt \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{dt}{t^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \frac{1}{3} \cdot \frac{1}{\frac{\sqrt{47}}{6}} \operatorname{arctg} \frac{t}{\frac{\sqrt{47}}{6}} + C$$

 $\int \frac{\mathrm{d}x}{x^2 + a^2} = \frac{1}{a} \arctan \frac{x}{a} + C$

 $\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot \left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$

$$\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)} =$$

$$= \frac{1}{3} \int \frac{\mathrm{d}x}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / ' \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{\mathrm{d}t}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \frac{1}{3} \cdot \frac{1}{3} \operatorname{arctg} \frac{t}{3} + C =$$

$$= \frac{1}{3} \int \left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 - \left[dx = dt \right]$$

$$= \frac{1}{3} \int \frac{dt}{t^2 + \left(\frac{\sqrt{47}}{6} \right)^2} = \frac{1}{3} \cdot \frac{1}{\frac{\sqrt{47}}{6}} \operatorname{arctg} \frac{t}{\frac{\sqrt{47}}{6}} + C =$$

$$\frac{2}{\sqrt{47}}$$

$$\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)} =$$

$$-1 \int \frac{\mathrm{d}x}{-1} \left[x + \frac{1}{6} = t / ' \right]$$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{dt}{t^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \frac{1}{3} \cdot \frac{1}{\frac{\sqrt{47}}{6}} \operatorname{arctg} \frac{t}{\frac{\sqrt{47}}{6}} + C =$$

$$= \frac{2}{\sqrt{47}} \arctan \frac{6t}{\sqrt{47}}$$

$$\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)} =$$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{dt}{\left(\sqrt{47}\right)^2} = \frac{1}{3} \cdot \frac{1}{\sqrt{47}} \operatorname{arctg} \frac{t}{\sqrt{47}} + C =$$

$$=\frac{1}{3}\int\frac{\mathrm{d}t}{t^2+\left(\frac{\sqrt{47}}{6}\right)^2}=\frac{1}{3}\cdot\frac{1}{\frac{\sqrt{47}}{6}}\arctan\frac{t}{\frac{\sqrt{47}}{6}}+C=$$

$$=\frac{2}{\sqrt{47}} \operatorname{arctg} \frac{6t}{\sqrt{47}} + C$$

$$\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)} =$$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{dt}{t^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \frac{1}{3} \cdot \frac{1}{\frac{\sqrt{47}}{6}} \operatorname{arctg} \frac{t}{\frac{\sqrt{47}}{6}} + C =$$

$$=\frac{2}{\sqrt{47}}$$
 arctg $\frac{6t}{\sqrt{47}}+C=\frac{2}{\sqrt{47}}$ arctg —

$$\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)} =$$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{dt}{t^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \frac{1}{3} \cdot \frac{1}{\frac{\sqrt{47}}{6}} \operatorname{arctg} \frac{t}{\frac{\sqrt{47}}{6}} + C =$$

$$\frac{3}{3}\int_{0}^{1}t^{2}+\left(\frac{\sqrt{47}}{6}\right)^{2}=\frac{3}{6}=\frac{\sqrt{47}}{6}=\frac{\sqrt{47}}{6}$$

$$=\frac{2}{\sqrt{47}} \operatorname{arctg} \frac{6t}{\sqrt{47}} + C = \frac{2}{\sqrt{47}} \operatorname{arctg} \frac{1}{\sqrt{47}}$$

$$\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)} =$$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{dt}{t^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \frac{1}{3} \cdot \frac{1}{\frac{\sqrt{47}}{6}} \operatorname{arctg} \frac{t}{\frac{\sqrt{47}}{6}} + C =$$

$$= \frac{2}{\sqrt{47}} \arctan \frac{6t}{\sqrt{47}} + C = \frac{2}{\sqrt{47}} \arctan \frac{6 \cdot \left(x + \frac{1}{6}\right)}{\sqrt{47}}$$

$$\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)} =$$

$$=\frac{1}{3}\int \frac{\mathrm{d}x}{\left(x+\frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x+\frac{1}{6} = t/' \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$$

$$=\frac{1}{3}\int \frac{\mathrm{d}t}{t^2+\left(\frac{\sqrt{47}}{6}\right)^2}=\frac{1}{3}\cdot\frac{1}{\frac{\sqrt{47}}{6}}\arctan\frac{t}{\frac{\sqrt{47}}{6}}+C=$$

$$=\frac{2}{\sqrt{47}} \operatorname{arctg} \frac{6t}{\sqrt{47}} + C = \frac{2}{\sqrt{47}} \operatorname{arctg} \frac{6 \cdot \left(x + \frac{1}{6}\right)}{\sqrt{47}} + C$$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / \\ dx = dt \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{dt}{t^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \frac{1}{3} \cdot \frac{1}{\frac{\sqrt{47}}{6}} \operatorname{arctg} \frac{t}{\frac{\sqrt{47}}{6}} + C =$$

 $=\frac{2}{\sqrt{47}} \operatorname{arctg} \frac{6x+1}{\sqrt{47}} + C$

 $=\frac{2}{\sqrt{47}}\arctan\frac{6t}{\sqrt{47}}+C=\frac{2}{\sqrt{47}}\arctan\frac{6\cdot\left(x+\frac{1}{6}\right)}{\sqrt{47}}+C=$

 $\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot \left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$

$$= \frac{1}{3} \int \frac{dx}{\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \begin{bmatrix} x + \frac{1}{6} = t / \\ dx = dt \end{bmatrix} =$$

$$= \frac{1}{3} \int \frac{dt}{t^2 + \left(\frac{\sqrt{47}}{6}\right)^2} = \frac{1}{3} \cdot \frac{1}{\frac{\sqrt{47}}{6}} \operatorname{arctg} \frac{t}{\frac{\sqrt{47}}{6}} + C =$$

 $=\frac{2}{\sqrt{47}}\arctan\frac{6t}{\sqrt{47}}+C=\frac{2}{\sqrt{47}}\arctan\frac{6\cdot\left(x+\frac{1}{6}\right)}{\sqrt{47}}+C=$

 $=\frac{2}{\sqrt{47}} \operatorname{arctg} \frac{6x+1}{\sqrt{47}} + C, \quad C \in \mathbb{R}$

 $\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot \left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$

deveti zadatak

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$.

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$.

$$x^2 + 5x - 4 =$$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$.

$$x^2 + 5x - 4 = x^2 + 5x$$

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$.

$$x^2 + 5x - 4 = x^2 + 5x +$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$$
.

$$\left(\frac{5}{2}\right)^2$$

$$x^2 + 5x - 4 = x^2 + 5x + \frac{25}{4}$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$$
.

$$x^2 + 5x - 4 = x^2 + 5x + \frac{25}{4} - \frac{25}{4}$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$$
.

$$x^{2} + 5x - 4 = x^{2} + 5x + \frac{25}{4} - \frac{25}{4} - 4$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$$
.

$$x^{2} + 5x - 4 = x^{2} + 5x + \frac{25}{4} - \frac{25}{4} - 4 =$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$$
.

$\int x^2 +$ Rješenje

$$x^{2} + 5x - 4 = x^{2} + 5x + \frac{25}{4} - \frac{25}{4} - 4 =$$
$$= \left(x + \frac{5}{2}\right)^{2}$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$$
.

$$x^{2} + 5x - 4 = x^{2} + 5x + \frac{25}{4} - \frac{25}{4} - 4 =$$

$$= \left(x + \frac{5}{2}\right)^{2} - \frac{41}{4}$$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

Riješite neodređeni integral
$$\int \frac{dx}{x^2 + 5x - 4}$$
.

$$x^{2} + 5x - 4 = x^{2} + 5x + \frac{25}{4} - \frac{25}{4} - 4 =$$

$$= \left(x + \frac{5}{2}\right)^2 - \frac{41}{4} =$$

$$= \left(x + \frac{5}{2}\right)^2$$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$$
.

$$x^{2} + 5x - 4 = x^{2} + 5x + \frac{25}{4} - \frac{25}{4} - 4 =$$

$$= \left(x + \frac{5}{2}\right)^{2} - \frac{41}{4} =$$

$$=\left(x+\frac{5}{2}\right)^2$$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

Riješite neodređeni integral
$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$$
.

$$x^{2} + 5x - 4 = x^{2} + 5x + \frac{25}{4} - \frac{25}{4} - 4 =$$

$$=$$
 $\left(x+\frac{5}{2}\right)^2-\frac{41}{4}=$

$$= \left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2$$
$$= \left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2$$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2}$$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x + \frac{5}{2} = t \\ \end{array}\right]$$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[x + \frac{5}{2} = t \right]'$$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / \\ dx \end{bmatrix}$$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / t \\ \mathrm{d}x = t \end{bmatrix}$$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / t \\ dx = dt \end{bmatrix}$$

$$\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$$

 $\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix}$

 $\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$

 $\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$

 $\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$

 $\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix} =$

 $= \int \frac{\mathrm{d}t}{t^2}$

 $\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$

 $\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$

 $=\int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2}$

 $\int \frac{\mathrm{d}x}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x - a}{x + a} \right| + C$

 $\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$

 $= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right|$

 $\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$

 $= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C$

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$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t/' \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{dt}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$=\frac{1}{\sqrt{41}}$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{dt}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{1}{t - \frac{\sqrt{41}}{2}} \right|$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{dt}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2} \right|$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{dt}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right|$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{dt}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$=rac{1}{\sqrt{41}}\ln\left|rac{2t-\sqrt{41}}{2t+\sqrt{41}}
ight|+C$$

$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}}$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{dt}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{dt}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}} \ln \left| \frac{2 \cdot }{t + \frac{\sqrt{41}}{2}} \right|$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{dt}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}} \ln \left| \frac{2 \cdot \left(x + \frac{5}{2}\right)}{t + \frac{5}{2}} \right|$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{dt}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}} \ln \left| \frac{2 \cdot \left(x + \frac{5}{2}\right) - \sqrt{41}}{2t + \sqrt{41}} \right|$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{dt}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}} \ln \left| \frac{2 \cdot \left(x + \frac{5}{2}\right) - \sqrt{41}}{2 \cdot 2} \right|$$

$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}} \ln \left| \frac{2 \cdot \left(x + \frac{5}{2}\right) - \sqrt{41}}{2 \cdot \left(x + \frac{5}{2}\right)} \right|$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}} \ln \left| \frac{2 \cdot \left(x + \frac{5}{2}\right) - \sqrt{41}}{2 \cdot \left(x + \frac{5}{2}\right) + \sqrt{41}} \right|$$

$$\int \frac{\mathrm{d}x}{x^2 + 5x - 4} = \int \frac{\mathrm{d}x}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ \mathrm{d}x = \mathrm{d}t \end{bmatrix} =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{2}} \ln \left| \frac{2t - \sqrt{41}}{\sqrt{2}} \right| + C = \frac{1}{\sqrt{2}} \ln \left| \frac{2 \cdot \left(x + \frac{5}{2}\right) - \sqrt{41}}{\sqrt{2}} \right| + C$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}} \ln \left| \frac{2 \cdot \left(x + \frac{5}{2}\right) - \sqrt{41}}{2 \cdot \left(x + \frac{5}{2}\right) + \sqrt{41}} \right| + C$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix} =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2 \cdot \frac{\sqrt{41}}{2}} \ln \left| \frac{t - \frac{\sqrt{41}}{2}}{t + \frac{\sqrt{41}}{2}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}} \ln \left| \frac{2 \cdot \left(x + \frac{5}{2}\right) - \sqrt{41}}{2 \cdot \left(x + \frac{5}{2}\right) + \sqrt{41}} \right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln \left| \frac{2x + 5 - \sqrt{41}}{2x + 5 + \sqrt{41}} \right| + C$$

$$\int \frac{dx}{x^2 + 5x - 4} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \begin{bmatrix} x + \frac{5}{2} = t / ' \\ dx = dt \end{bmatrix} =$$

$$=\int \frac{\mathrm{d}t}{t^2-\left(\frac{\sqrt{41}}{2}\right)^2}=\frac{1}{2\cdot\frac{\sqrt{41}}{2}}\ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right|+C=$$

 $= \frac{1}{\sqrt{41}} \ln \left| \frac{2t - \sqrt{41}}{2t + \sqrt{41}} \right| + C = \frac{1}{\sqrt{41}} \ln \left| \frac{2 \cdot \left(x + \frac{5}{2}\right) - \sqrt{41}}{2 \cdot \left(x + \frac{5}{2}\right) + \sqrt{41}} \right| + C =$

$$=\frac{1}{\sqrt{41}}\ln\left|\frac{2x+5-\sqrt{41}}{2x+5+\sqrt{41}}\right|+C,\quad C\in\mathbb{R}$$

deseti zadatak

 $\int \frac{5x+3}{x^2+5x-4} \, \mathrm{d}x =$

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

Riješite neodređeni integral $\int \frac{5x+3}{x^2+5x-4} dx$.

 $\int \frac{5x+3}{x^2+5x-4} \, \mathrm{d}x = \int -$

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

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

$$\int \frac{5x+3}{x^2+5x-4} \, \mathrm{d}x = \int \frac{1}{x^2+5x-4} \, \mathrm{d}x$$

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

$$\int \frac{5x+3}{x^2+5x-4} \, \mathrm{d}x = \int \frac{(2x+5)}{x^2+5x-4}$$

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

$$\int \frac{5x+3}{x^2+5x-4} \, \mathrm{d}x = \int \frac{\frac{5}{2} \cdot (2x+5)}{x^2+5x-4}$$

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

$$\int \frac{5x+3}{x^2+5x-4} dx = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4}$$

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

$$\int \frac{5x+3}{x^2+5x-4} \, \mathrm{d}x = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} \, \mathrm{d}x$$

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

$$\int \frac{5x+3}{x^2+5x-4} \, \mathrm{d}x = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} \, \mathrm{d}x =$$

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

$$\int \frac{5x+3}{x^2+5x-4} \, \mathrm{d}x = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} \, \mathrm{d}x =$$
$$= \frac{5}{2} \int \frac{2x+5}{x^2+5x-4} \, \mathrm{d}x$$

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

$$\int \frac{5x+3}{x^2+5x-4} dx = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} dx =$$

$$= \frac{5}{2} \int \frac{2x+5}{x^2+5x-4} \, \mathrm{d}x -$$

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

$$\int \frac{5x+3}{x^2+5x-4} \, \mathrm{d}x = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} \, \mathrm{d}x =$$

$$= \frac{5}{2} \int \frac{2x+5}{x^2+5x-4} \, \mathrm{d}x - \frac{19}{2}$$

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

$$\int \frac{5x+3}{x^2+5x-4} \, \mathrm{d}x = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} \, \mathrm{d}x =$$

$$= \frac{5}{2} \int \frac{2x+5}{x^2+5x-4} \, \mathrm{d}x - \frac{19}{2} \int \frac{\mathrm{d}x}{x^2+5x-4}$$

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

$$\int \frac{5x+3}{x^2+5x-4} dx = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} dx =$$

$$= \frac{5}{2} \int \frac{2x+5}{x^2+5x-4} dx - \frac{19}{2} \int \frac{dx}{x^2+5x-4} =$$

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

$$\int \frac{5x+3}{x^2+5x-4} dx = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} dx =$$

$$= \frac{5}{2} \int \frac{2x+5}{x^2+5x-4} dx - \frac{19}{2} \int \frac{dx}{x^2+5x-4} =$$

$$=\frac{5}{2}\ln\left|x^2+5x-4\right|$$

Riješite neodređeni integral
$$\int \frac{5x+3}{x^2+5x-4} dx$$
.

Rješenje

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

$$\int \frac{5x+3}{x^2+5x-4} dx = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} dx =$$
prethodni zadatak

 $=\frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x-\frac{19}{2}\int \frac{\mathrm{d}x}{x^2+5x-4}=$

$$-\frac{5}{2} \ln |x^2 + 5x - 4| - \frac{19}{2}$$

$$=\frac{5}{2}\ln\left|x^2+5x-4\right|-\frac{19}{2}$$
.

Riješite neodređeni integral
$$\int \frac{5x+3}{x^2+5x-4} dx$$
.

Rješenje

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

$$\int \frac{5x+3}{x^2+5x-4} dx = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} dx =$$

$$= \frac{5}{2} \int \frac{2x+5}{x^2+5x-4} dx - \frac{19}{2} \int \frac{dx}{x^2+5x-4} =$$

$$= \frac{5}{2} \ln|x^2+5x-4| - \frac{19}{2} \cdot \frac{1}{\sqrt{41}} \ln\left|\frac{2x+5-\sqrt{41}}{2x+5+\sqrt{41}}\right|$$

prethodni zadatak

Riješite neodređeni integral
$$\int \frac{5x+3}{x^2+5x-4} dx$$
.

Rješenje

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

$$\int 5x + 3 dx = \int \frac{5}{2} \cdot (2x + 5) - \frac{19}{2} dx = C$$

$$\int \frac{5x+3}{x^2+5x-4} \, dx = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} \, dx =$$

$$= \frac{5}{2} \int \frac{2x+5}{x^2+5x-4} \, dx - \frac{19}{2} \int \frac{dx}{x^2+5x-4} =$$

$$= \frac{5}{2} \ln|x^2+5x-4| - \frac{19}{2} \cdot \frac{1}{\sqrt{15}} \ln\left|\frac{2x+5-\sqrt{41}}{2x+5}\right| + C$$

$$= \frac{5}{2} \ln \left| x^2 + 5x - 4 \right| - \frac{19}{2} \cdot \frac{1}{\sqrt{41}} \ln \left| \frac{2x + 5 - \sqrt{41}}{2x + 5 + \sqrt{41}} \right| + C$$

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

$$\int \frac{5x+3}{x^2+5x-4} dx = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} dx =$$
prethodni

$$= \frac{5}{2} \int \frac{2x+5}{x^2+5x-4} \, \mathrm{d}x - \frac{19}{2} \int \frac{\mathrm{d}x}{x^2+5x-4} =$$

$$= \frac{1}{2} \int \frac{1}{x^2 + 5x - 4} \, \mathrm{d}x - \frac{1}{2}$$

$$\frac{19}{2} \int \frac{\mathrm{d}x}{x^2 + 5x + 4} =$$

$$+5x-4$$

$$\frac{x}{x-4} =$$

$$\frac{\sqrt{41}}{\sqrt{41}} + C =$$

$$\frac{1}{x-4}$$

$$\left| \frac{5 - \sqrt{41}}{5 + \sqrt{41}} \right| + C =$$

$$= \frac{5}{2} \ln \left| x^2 + 5x - 4 \right| - \frac{19}{2} \cdot \frac{1}{\sqrt{41}} \ln \left| \frac{2x + 5 - \sqrt{41}}{2x + 5 + \sqrt{41}} \right| + C =$$

$$\left. \frac{-\sqrt{41}}{+\sqrt{41}} \right| + C =$$

$$\left| \frac{\overline{11}}{\overline{11}} \right| + C =$$

$$\left|\frac{1-\sqrt{41}}{1+\sqrt{41}}\right|+C=$$

$$\left| \frac{\sqrt{41}}{\sqrt{41}} \right| + C =$$

$$\left| \frac{-\sqrt{41}}{+\sqrt{41}} \right| + C =$$

$$\sqrt{41}$$

$$= \frac{5}{2} \ln \left| x^2 + 5x - 4 \right| - \frac{19}{2\sqrt{41}} \ln \left| \frac{2x + 5 - \sqrt{41}}{2x + 5 + \sqrt{41}} \right| + C$$

Riješite neodređeni integral $\int \frac{5x+3}{x^2+5x-4} dx$.

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

$$\int \frac{5x+3}{x^2+5x-4} dx = \int \frac{\frac{5}{2} \cdot (2x+5) - \frac{19}{2}}{x^2+5x-4} dx =$$

$$\int \frac{1}{x}$$

$$= \frac{5}{2} \int \frac{2x+5}{x^2+5x-4} \, \mathrm{d}x - \frac{19}{2} \int \frac{\mathrm{d}x}{x^2+5x-4} =$$

$$-2 \int x^2 + 5$$

$$= \frac{5}{2} \ln |x^2 + 5x| - \frac{1}{2}$$

$$\int x^{2} + 5x - 4 \qquad \int x^{2} + 5x - 4$$

$$5 \int 2x + 5 \qquad 19 \int dx$$

$$\frac{2}{2} \int \frac{x^2 + 5x - 4}{x^2 + 5x - 4}$$

 $= \frac{5}{2} \ln \left| x^2 + 5x - 4 \right| - \frac{19}{2\sqrt{41}} \ln \left| \frac{2x + 5 - \sqrt{41}}{2x + 5 + \sqrt{41}} \right| + C, \quad C \in \mathbb{R}$

$$\frac{x}{x-4}$$

$$= \frac{5}{2} \ln \left| x^2 + 5x - 4 \right| - \frac{19}{2} \cdot \frac{1}{\sqrt{41}} \ln \left| \frac{2x + 5 - \sqrt{41}}{2x + 5 + \sqrt{41}} \right| + C =$$

prethodni zadatak

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