Seminari 4

Matematika za ekonomiste 2

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Sadržaj

prvi zadatak

Zadatak 1

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

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Rješenje

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

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

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

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

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

$$= x \ln x$$

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

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

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

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

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

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

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

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

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

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

Zadatak 1

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

Rješenje

$$\begin{aligned}\int \ln x \, \mathrm{d}x = \int 1 \cdot \ln x \, \mathrm{d}x = \int (x)' \ln x \, \mathrm{d}x = \\ = x \ln x - \int x \cdot (\ln x)' \, \mathrm{d}x = x \ln x - \int x \cdot \frac{1}{x} \, \mathrm{d}x = \\ = x \ln x - \int \mathrm{d}x = x \ln x - x + C\end{aligned}$$

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

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

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

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

drugi zadatak

Zadatak 2

Riješite neodređeni integral $\int x^4 \ln 8x \, \mathrm{d}x$.

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

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

Zadatak 2

Riješite neodređeni integral $\int x^4 \ln 8x \,\mathrm{d}x$.

Rješenje

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

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

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

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

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

Zadatak 2

Riješite neodređeni integral $\int x^4 \ln 8x \, \mathrm{d}x$.

Rješenje

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

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

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

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Riješite neodređeni integral $\displaystyle\int x^4 \ln 8x \, \mathrm{d}x$.

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

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

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

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

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

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

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Riješite neodređeni integral $\displaystyle\int x^4 \ln 8x \,\mathrm{d}x$.

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

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

Zadatak 2

Riješite neodređeni integral $\int x^4 \ln 8x \, \mathrm{d}x$.

Rješenje

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

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

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

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

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

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

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

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

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

Zadatak 2

Riješite neodređeni integral $\int x^4 \ln 8x \, \mathrm{d}x$.

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

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

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

Zadatak 2

Riješite neodređeni integral $\int x^4 \ln 8x \, \mathrm{d}x$.

Rješenje

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

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

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

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

Zadatak 2

Riješite neodređeni integral $\int x^4 \ln 8x \, \mathrm{d}x$.

Rješenje

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

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

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

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

treći zadatak

Zadatak 3

Riješite neodređeni integral $\int x \cos 3x \, \mathrm{d}x$.

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Rješenje

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

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

Zadatak 3

Riješite neodređeni integral $\int x \cos 3x \, \mathrm{d}x$.

Rješenje

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

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

Zadatak 3

Riješite neod

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

Rješenje

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

Zadatak 3

Riješite neod

Rješenje

$$\int \cos 3x \, \mathrm{d}x = \left[\quad 3x = t \right.$$

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

Zadatak 3

Riješite neo

$$\int \cos 3x \, \mathrm{d}x = \left[\quad 3x = t \,/\, ' \right.$$

Rješenje

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

Zadatak 3

Riješite neod

Rješenje

$$\int \cos 3x \, \mathrm{d}x = \left[\begin{array}{l} \quad 3x = t \,/\, ' \\ 3 \end{array} \right.$$

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

Zadatak 3

Riješite neod

Rješenje

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

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

Zadatak 3

Riješite neod

Rješenje

$$\int \cos 3x \, \mathrm{d}x = \left[\begin{array}{l} 3x = t \, / \, ' \\ 3 \, \mathrm{d}x = \end{array} \right.$$

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

Zadatak 3

Riješite neod

Rješenje

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

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

Zadatak 3

Riješite neoc

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

Rješenje

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

Zadatak 3

Riješite neod

Rješenje

$$\int \cos 3x \,\mathrm{d}x = \begin{bmatrix} 3x = t \,/\,' \\ 3\,\mathrm{d}x = \mathrm{d}t \end{bmatrix} = \int$$

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

Zadatak 3

Riješite neod

Rješenje

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

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

Zadatak 3

Riješite neod

Rješenje

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

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

Zadatak 3

Riješite neo

Rješenje

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

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

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

Zadatak 3

Riješite neod

Rješenje

$$\int \cos 3x \, \mathrm{d}x = \left[\begin{array}{r} 3x = t \,/\, ' \\ 3\,\mathrm{d}x = \mathrm{d}t \end{array} \right] = \int \cos t \cdot \frac{\mathrm{d}t}{3} =$$

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

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

Zadatak 3

Riješite neod

Rješenje

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

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

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Zadatak 3

Riješite neod

Rješenje

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

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

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

Zadatak 3

Riješite neo

Rješenje

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

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

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

Zadatak 3

Riješite neodređeni integral $\int x\cos 3x\,\mathrm{d}x$.

Rješenje

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

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

Zadatak 3

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Zadatak 3

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

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

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Zadatak 3

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

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

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

Zadatak 3

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

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

Zadatak 3

Riješite neodređeni integral $\int x \cos 3x \, \mathrm{d}x$.

Rješenje

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

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

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

Zadatak 3

Riješite neodređeni integral $\int x \cos 3x \, \mathrm{d}x$.

Rješenje

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

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

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

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

Zadatak 3

Riješite neodređeni integral $\int x\cos 3x\,\mathrm{d}x$.

Rješenje

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

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

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

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

Zadat

Riješit

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

Rješen

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

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

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

Zadat

Riješit

Rješen

$$\int \sin 3x \, \mathrm{d}x = \left[\quad 3x = t \right.$$

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

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

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

Zadat

Rješit

Rješe

$$\int \sin 3x \,\mathrm{d}x = \left[\quad 3x = t \,/\,' \right.$$

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

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

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

Zadat

Riješit

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

Rješe

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

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

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

Zadat

Riješit

Rješen

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

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

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

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

Zadat

Rješit

Rješe

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

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

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

Zadat

Rriješit

Rješe

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

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

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

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

Zadat

Riješit

Rješen

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

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

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

Zadat

Riješit

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

Rješen

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

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

Zadat

Riješit

Rješe

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

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

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

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

Zadat

Riješit

Rješe

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

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

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

Zadat

Riješit

Rješen

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

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

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

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

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

Zadat

Riješit

Riješen

$$\int \sin 3x \,\mathrm{d}x = \begin{bmatrix} 3x = t \,/\, ' \\ 3\,\mathrm{d}x = \mathrm{d}t \end{bmatrix} = \int \sin t \cdot \frac{\mathrm{d}t}{3} =$$

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

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

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

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

Zadat

Riješit

Rješen

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

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

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

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

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

Zadat

Riješit

Rješe

$$\int \sin 3x \, \mathrm{d}x = \begin{bmatrix} 3x = t \,/\, ' \\ 3 \, \mathrm{d}x = \mathrm{d}t \end{bmatrix} = \int \sin t \cdot \frac{\mathrm{d}t}{3} =$$

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

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Zadat

Riješit

Rješen

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

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

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

Zadat

Riješit

Rješen

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

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

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

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

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

Zadatak 3

Riješite neodređeni integral $\int x \cos 3x \, \mathrm{d}x$.

Rješenje

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

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

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

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

Zadatak 3

Riješite neodređeni integral $\int x \cos 3x \, \mathrm{d}x$.

Rješenje

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

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

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

Zadatak 3

Riješite neodređeni integral $\int x \cos 3x \,\mathrm{d}x$.

Rješenje

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

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

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

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

četvrti zadatak

Zadatak 4

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

Zadatak 4

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

Rješenje

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

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

Zadatak 4

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

Rješenje

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

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

Zadatak 4

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

Rješenje

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

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

Zadatak 4

Riješite neodređeni integral $\displaystyle\int (x^2+x)e^{5x}\,\mathrm{d}x.$

Rješenje

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

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Zadatak 4

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Rješenje

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

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

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Zadatak 4

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

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

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Rješenje

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

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

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Zadatak 4

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

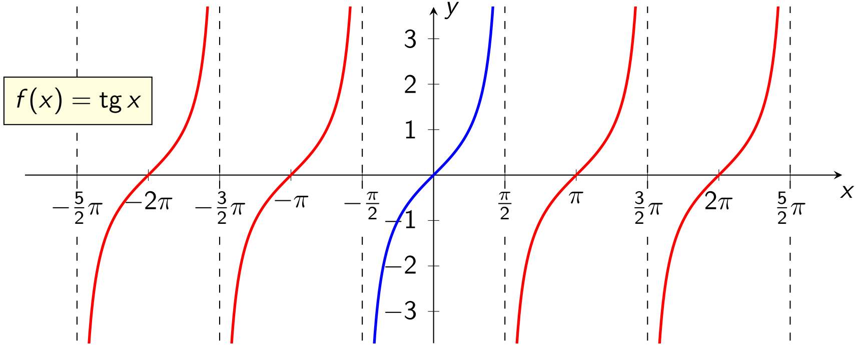
$$= \left(\frac{1}{5}x^2 + \frac{1}{5}x\right) e^{5x} - \left(\frac{2}{25}x + \frac{1}{25}\right) e^{5x} + \frac{1}{5} \int 2 \cdot \frac{1}{5}e^{5x} \,\mathrm{d}x =$$

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

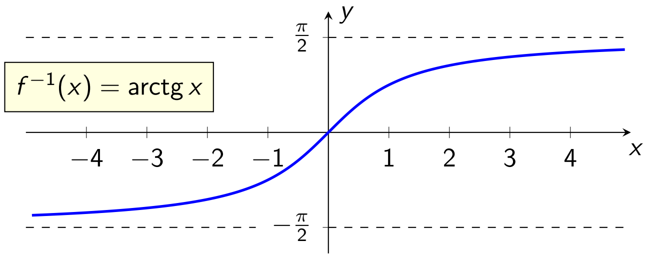
$$= \left(\frac{1}{5}x^2 + \frac{3}{25}x - \frac{1}{25}\right) e^{5x} + \frac{2}{25} \cdot \frac{1}{5}e^{5x} + C =$$

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

Funkcija tangens i njezina inverzna funkcija



$f(x) = \operatorname{tg} x$
y
3
2
1
x
$-\frac{5}{2}\pi$
-2π
$-\frac{3}{2}\pi$
$-\pi$
$-\frac{\pi}{2}$
-1
-2
-3
$\frac{\pi}{2}$
π
$\frac{3}{2}\pi$
2π
$\frac{5}{2}\pi$



y
$\frac{\pi}{2}$
$f^{-1}(x) = \operatorname{arctg} x$
x
-4
-3
-2
-1
1
2
3
4
$-\frac{\pi}{2}$

Funkcija

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

je bijekcija i ima inverznu funkciju

$$f^{-1} : \mathbb{R} \to \left\langle -\frac{\pi}{2}, \frac{\pi}{2} \right\rangle, \quad f^{-1}(x) = \operatorname{arctg} x.$$

Derivacija inverzne funkcije jednaka je

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

odnosno

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

peti zadatak

Zadatak 5

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

Zadatak 5

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

Rješenje

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

Zadatak 5

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

Rješenje

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

Zadatak 5

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

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \Bigg[\qquad x^3 = t \,/\, '$$

Zadatak 5

Riješite neodređeni integral $\displaystyle\int \frac{x^2}{x^6+1}\,\mathrm{d}x$.

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{l} \quad x^3 = t \;/\; ' \\ 3x^2 \end{array}\right.$$

Zadatak 5

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

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \;/\,' \\ 3x^2\,\mathrm{d}x \end{array}\right.$$

Zadatak 5

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

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \;/\;' \\ 3x^2\,\mathrm{d}x = \end{array}\right.$$

Zadatak 5

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

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \,/\, ' \\ 3x^2\,\mathrm{d}x = \mathrm{d}t \end{array} \right.$$

Zadatak 5

Riješite neodređeni integral $\displaystyle\int \frac{x^2}{x^6+1}\,\mathrm{d}x$.

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \;/\;' \\ 3x^2\,\mathrm{d}x = \mathrm{d}t \end{array}\right]$$

Zadatak 5

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

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \;/\,' \\ 3x^2\,\mathrm{d}x = \mathrm{d}t \end{array} \right] = \int \frac{}{}$$

Zadatak 5

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

$$\begin{aligned} x^3 &= t \;/\,^2 \\ x^6 &= t^2 \end{aligned}$$

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \;/\,' \\ 3x^2\,\mathrm{d}x = \mathrm{d}t \end{array}\right] = \int \frac{}{t^2+1}$$

Zadatak 5

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

$$\begin{aligned} x^3 &= t \;/\,^2 \\ x^6 &= t^2 \end{aligned}$$

$$x^2\,\mathrm{d}x = \frac{\mathrm{d}t}{3}$$

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \;/\,' \\ 3x^2\,\mathrm{d}x = \mathrm{d}t \end{array}\right] = \int \frac{\frac{\mathrm{d}t}{3}}{t^2+1}$$

Zadatak 5

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

$$x^3 = t \;/\;^2$$
$$x^6 = t^2$$

$$x^2\,\mathrm{d}x = \frac{\mathrm{d}t}{3}$$

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \;/\;' \\ 3x^2\,\mathrm{d}x = \mathrm{d}t \end{array}\right] = \int \frac{\frac{\mathrm{d}t}{3}}{t^2+1} = \frac{1}{3}\int \frac{\mathrm{d}t}{t^2+1}$$

Zadatak 5

Riješite neodređeni integral $\displaystyle\int \frac{x^2}{x^6+1}\,\mathrm{d}x.$

$$\begin{aligned} x^3 &= t \;/\,^2 \\ x^6 &= t^2 \end{aligned}$$

$$x^2\,\mathrm{d}x = \frac{\mathrm{d}t}{3}$$

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \;/\,' \\ 3x^2\,\mathrm{d}x = \mathrm{d}t \end{array}\right] = \int \frac{\frac{\mathrm{d}t}{3}}{t^2+1} = \frac{1}{3}\int \frac{\mathrm{d}t}{t^2+1} =$$

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

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

Zadatak 5

Riješite neodređeni integral $\displaystyle\int \frac{x^2}{x^6+1}\,\mathrm{d}x.$

Rješenje

$$\begin{aligned} x^3 &= t \,/\, ^2 \\ x^6 &= t^2 \end{aligned}$$

$$x^2\,\mathrm{d}x = \frac{\mathrm{d}t}{3}$$

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{aligned} x^3 &= t \,/\,' \\ 3x^2\,\mathrm{d}x &= \mathrm{d}t \end{aligned}\right] = \int \frac{\frac{\mathrm{d}t}{3}}{t^2+1} = \frac{1}{3}\int \frac{\mathrm{d}t}{t^2+1} =$$

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

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

Zadatak 5

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

$$\boxed{\begin{aligned} x^3 &= t \;/\;^2 \\ x^6 &= t^2 \end{aligned}}$$

$$\boxed{x^2\,\mathrm{d}x = \frac{\mathrm{d}t}{3}}$$

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \;/\;' \\ 3x^2\,\mathrm{d}x = \mathrm{d}t \end{array}\right] = \int \frac{\frac{\mathrm{d}t}{3}}{t^2+1} = \frac{1}{3}\int \frac{\mathrm{d}t}{t^2+1} =$$

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

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

Zadatak 5

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

$$x^3 = t \;/\; ^2$$
$$x^6 = t^2$$

$$x^2\,\mathrm{d}x = \frac{\mathrm{d}t}{3}$$

Rješenje

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

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

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

Zadatak 5

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

$$x^3 = t \,/\,^2$$
$$x^6 = t^2$$

$$x^2\,\mathrm{d}x = \frac{\mathrm{d}t}{3}$$

Rješenje

$$\int \frac{x^2}{x^6+1}\,\mathrm{d}x = \left[\begin{array}{r} x^3 = t \,/\,' \\ 3x^2\,\mathrm{d}x = \mathrm{d}t \end{array}\right] = \int \frac{\frac{\mathrm{d}t}{3}}{t^2+1} = \frac{1}{3}\int \frac{\mathrm{d}t}{t^2+1} =$$

$$= \frac{1}{3}\operatorname{arctg} t + C = \frac{1}{3}\operatorname{arctg} x^3 + C, \quad C \in \mathbb{R}$$

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

šesti zadatak

Zadatak 6

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

Zadatak 6

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

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

Rješenje

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

Zadatak 6

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

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

Rješenje

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

Zadatak 6

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

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

Rješenje

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

Zadatak 6

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

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

Rješenje

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

Zadatak 6

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

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

Rješenje

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

Zadatak 6

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

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

Rješenje

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

Zadatak 6

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

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

Rješenje

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

Zadatak 6

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

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

Rješenje

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

Zadatak 6

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

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

Rješenje

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

Zadatak 6

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

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

Rješenje

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

Zadatak 6

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

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

Rješenje

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

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

Zadatak 6

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

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

Rješenje

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

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

Zadatak 6

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

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

Rješenje

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

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

Zadatak 6

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

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

Rješenje

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

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

Zadatak 6

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

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

Rješenje

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

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

Zadatak 6

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

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

Rješenje

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

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

Zadatak 6

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

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

Rješenje

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

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

$$= \frac{\sqrt{15}}{15}$$

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

Zadatak 6

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

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

Rješenje

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

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

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

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

Zadatak 6

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

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

Rješenje

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

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

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

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

Zadatak 6

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

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

Rješenje

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

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

$$= \frac{\sqrt{15}}{15}\operatorname{arctg}\frac{\sqrt{15}}{5}x + C, \quad C \in \mathbb{R}$$

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

sedmi zadatak

Zadatak 7

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

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

Zadatak 7

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

Rješenje

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

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

Zadatak 7

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

Rješenje

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

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

Zadatak 7

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

Rješenje

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

Zadatak 7

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

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

Rješenje

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

$$= \overline{}$$

Zadatak 7

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

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

Rješenje

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

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

Zadatak 7

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

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

Rješenje

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

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

Zadatak 7

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

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

Rješenje

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

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

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

Zadatak 7

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

Rješenje

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

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

Zadatak 7

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

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

Rješenje

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

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

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

Zadatak 7

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

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

Rješenje

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

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

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

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

Zadatak 7

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

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

Rješenje

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

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

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

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

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

Zadatak 7

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

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

Rješenje

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

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

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

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

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

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

Zadatak 7

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

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

Rješenje

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

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

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

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

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

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

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

Zadatak 7

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

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

Rješenje

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

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

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

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

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

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

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

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

Zadatak 7

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

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

Rješenje

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

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

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

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

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

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

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

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

$$B = -\frac{1}{2\sqrt{3}}$$

Zadatak 7

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

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

Rješenje

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

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

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

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

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

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

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

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

$$B = -\frac{1}{2\sqrt{3}}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$\boxed{\ln|a| - \ln|b| = \ln\frac{|a|}{|b|} = \ln\left|\frac{a}{b}\right|} \qquad \boxed{\int \frac{\mathrm{d}x}{ax+b} = \frac{1}{a}\ln|ax+b| + C}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

osmi zadatak

Zadatak 8

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

Zadatak 8

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

Rješenje

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

Zadatak 8

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

Rješenje

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

Zadatak 8

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

Rješenje

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

Zadatak 8

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

Rješenje

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

Zadatak 8

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

Rješenje

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

Zadatak 8

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

Rješenje

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

Zadatak 8

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

Rješenje

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

Zadatak 8

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

Rješenje

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

$$= 3 \cdot \left(\qquad\qquad\qquad\qquad \right)$$

Zadatak 8

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

Rješenje

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

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

Zadatak 8

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

Rješenje

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

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

Zadatak 8

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

Rješenje

$$\boxed{\left(\frac{\frac{1}{3}}{2}\right)^2}$$

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

$$= 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{1}{36} \qquad\qquad \right)$$

Zadatak 8

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

Rješenje

$$\boxed{\left(\frac{\frac{1}{3}}{2}\right)^2}$$

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

$$= 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36} \qquad \right)$$

Zadatak 8

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

Rješenje

$$\boxed{\left(\frac{\frac{1}{3}}{2}\right)^2}$$

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

$$= 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{1}{36} - \frac{1}{36} + \frac{4}{3}\right)$$

Zadatak 8

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

Rješenje

$$\left(\frac{\frac{1}{3}}{2}\right)^2$$

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

$$= 3\cdot\left(\boxed{x^2+\frac{1}{3}x+\frac{1}{36}}-\frac{1}{36}+\frac{4}{3}\right) =$$

$$= 3\cdot\left(\qquad\qquad\right)$$

Zadatak 8

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

Rješenje

$$\boxed{\left(\frac{\frac{1}{3}}{2}\right)^2}$$

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

$$= 3\cdot\left(\boxed{x^2+\frac{1}{3}x+\frac{1}{36}}-\frac{1}{36}+\frac{4}{3}\right) =$$

$$= 3\cdot\left(\left(x+\frac{1}{6}\right)^2 \qquad\qquad\right)$$

Zadatak 8

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

Rješenje

$$\left(\frac{\frac{1}{3}}{2}\right)^2$$

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

$$= 3\cdot\left(\boxed{x^2+\frac{1}{3}x+\frac{1}{36}}-\frac{1}{36}+\frac{4}{3}\right) =$$

$$= 3\cdot\left(\left(x+\frac{1}{6}\right)^2+\frac{47}{36}\right)$$

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

Zadatak 8

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

Rješenje

$$\left(\frac{\frac{1}{3}}{2}\right)^2$$

$$\begin{aligned} 3x^2 + x + 4 &= 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{4}{3}\right) = \\ &= 3 \cdot \left(\boxed{x^2 + \frac{1}{3}x + \frac{1}{36}} - \frac{1}{36} + \frac{4}{3}\right) = \\ &= 3 \cdot \left(\left(x + \frac{1}{6}\right)^2 + \frac{47}{36}\right) = \\ &= 3 \cdot \left(\qquad \right) \end{aligned}$$

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

Zadatak 8

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

Rješenje

$$\left(\frac{\frac{1}{3}}{2}\right)^2$$

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

$$= 3\cdot\left(\boxed{x^2+\frac{1}{3}x+\frac{1}{36}}-\frac{1}{36}+\frac{4}{3}\right) =$$

$$= 3\cdot\left(\left(x+\frac{1}{6}\right)^2+\frac{47}{36}\right) =$$

$$= 3\cdot\left(\left(x+\frac{1}{6}\right)^2 \qquad\qquad\right)$$

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

Zadatak 8

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

Rješenje

$$\left(\frac{\frac{1}{3}}{2} \right)^2$$

$$\begin{aligned}
3x^2 + x + 4 &= 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{4}{3} \right) = \\
&= 3 \cdot \left(\boxed{x^2 + \frac{1}{3}x + \frac{1}{36}} - \frac{1}{36} + \frac{4}{3} \right) = \\
&= 3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \frac{47}{36} \right) = \\
&= 3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \qquad \right)
\end{aligned}$$

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

Zadatak 8

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

Rješenje

$$\boxed{\left(\frac{\frac{1}{3}}{2}\right)^2}$$

$$\begin{aligned}
3x^2 + x + 4 &= 3 \cdot \left(x^2 + \frac{1}{3}x + \frac{4}{3}\right) = \\
&= 3 \cdot \left(\boxed{x^2 + \frac{1}{3}x + \frac{1}{36}} - \frac{1}{36} + \frac{4}{3}\right) = \\
&= 3 \cdot \left(\left(x + \frac{1}{6}\right)^2 + \frac{47}{36}\right) = \\
&= 3 \cdot \left(\left(x + \frac{1}{6}\right)^2 + \left(\frac{\sqrt{47}}{6}\right)^2\right)
\end{aligned}$$

$$\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)}$$

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

$$\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot\left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$$

$$= \frac{1}{3}\int \frac{\mathrm{d}x}{\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2}$$

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

$$\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)} =$$

$$= \frac{1}{3} \int \frac{\mathrm{d}x}{\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2} = \left[\begin{array}{l} x + \frac{1}{6} = t \\ \\ \end{array} \right.$$

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

$$\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot\left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$$

$$= \frac{1}{3}\int \frac{\mathrm{d}x}{\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2} = \left[\ x+\frac{1}{6}=t\ /'\right.$$

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

$$\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot\left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$$

$$= \frac{1}{3}\int \frac{\mathrm{d}x}{\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2} = \left[\begin{array}{c} x+\frac{1}{6}=t\,/\,' \\ \mathrm{d}x \end{array}\right.$$

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

$$\int \frac{\mathrm{d}x}{3x^2 + x + 4} = \int \frac{\mathrm{d}x}{3 \cdot \left(\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2 \right)} =$$

$$= \frac{1}{3} \int \frac{\mathrm{d}x}{\left(x + \frac{1}{6} \right)^2 + \left(\frac{\sqrt{47}}{6} \right)^2} = \left[\begin{array}{c} x + \frac{1}{6} = t \,/\,' \\ \mathrm{d}x = \end{array} \right.$$

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

$$\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot\left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$$

$$= \frac{1}{3}\int \frac{\mathrm{d}x}{\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2} = \left[\begin{array}{c} x+\frac{1}{6}=t\,/\,' \\ \mathrm{d}x=\mathrm{d}t \end{array}\right.$$

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

$$\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot\left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$$

$$= \frac{1}{3}\int \frac{\mathrm{d}x}{\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2} = \left[\begin{array}{c} x+\frac{1}{6}=t\,/' \\ \mathrm{d}x=\mathrm{d}t \end{array}\right]$$

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

$$\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot\left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$$

$$= \frac{1}{3}\int \frac{\mathrm{d}x}{\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2} = \left[\begin{array}{c} x+\frac{1}{6}=t\,/\,' \\ \mathrm{d}x=\mathrm{d}t \end{array}\right] =$$

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

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

$$\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot\left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$$

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

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$$= \frac{2}{\sqrt{47}}$$

$$\int \frac{\mathrm{d}x}{3x^2+x+4} = \int \frac{\mathrm{d}x}{3\cdot\left(\left(x+\frac{1}{6}\right)^2+\left(\frac{\sqrt{47}}{6}\right)^2\right)} =$$

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$$= \frac{2}{\sqrt{47}}\operatorname{arctg}\frac{6t}{\sqrt{47}}$$

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$$= \frac{2}{\sqrt{47}}\operatorname{arctg}\frac{6t}{\sqrt{47}} + C = \frac{2}{\sqrt{47}}\operatorname{arctg}\text{\_\_\_\_\_\_\_\_\_\_}$$

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$$= \frac{2}{\sqrt{47}}\operatorname{arctg}\frac{6t}{\sqrt{47}} + C = \frac{2}{\sqrt{47}}\operatorname{arctg}\frac{\qquad\qquad}{\sqrt{47}}$$

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$$= \frac{2}{\sqrt{47}}\operatorname{arctg}\frac{6x+1}{\sqrt{47}} + C$$

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$$= \frac{2}{\sqrt{47}}\operatorname{arctg}\frac{6x+1}{\sqrt{47}} + C, \quad C\in\mathbb{R}$$

deveti zadatak

Zadatak 9

Riješite neodređeni integral $\displaystyle\int \frac{\mathrm{d}x}{x^2+5x-4}$.

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Rješenje

$$x^2+5x-4=$$

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Rješenje

$$x^2+5x-4 = x^2+5x$$

Zadatak 9

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{x^2 + 5x - 4}$.

Rješenje

$$x^2 + 5x - 4 = x^2 + 5x +$$

Zadatak 9

Riješite neodređeni integral $\int \frac{\mathrm{d}x}{x^2+5x-4}$.

$$\boxed{\left(\frac{5}{2}\right)^2}$$

Rješenje

$$x^2+5x-4 = x^2+5x+\frac{25}{4}$$

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$$x^2+5x-4=\boxed{x^2+5x+\frac{25}{4}}-\frac{25}{4}-4=$$

$$=$$

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$$x^2+5x-4 = \boxed{x^2+5x+\frac{25}{4}} - \frac{25}{4} - 4 =$$

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

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Rješenje

$$x^2+5x-4=\boxed{x^2+5x+\frac{25}{4}}-\frac{25}{4}-4=$$

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

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$$= \left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2$$

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$$= \int \frac{\qquad}{\qquad}$$

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$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right|$$

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

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array} \right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln \left| \frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}} \right| + C$$

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

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}}$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{}{}\right|$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{\phantom{2t+\sqrt{41}}}\right|$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right|$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}}$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}} \ln\left|\frac{}{}\right|$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}} \ln\left|\frac{2\cdot}{}\right|$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}} \ln\left|\frac{2\cdot\left(x+\frac{5}{2}\right)}{\phantom{2\cdot\left(x+\frac{5}{2}\right)}}\right|$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}} \ln\left|\frac{2\cdot\left(x+\frac{5}{2}\right)-\sqrt{41}}{}\right|$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}} \ln\left|\frac{2\cdot\left(x+\frac{5}{2}\right)-\sqrt{41}}{2\cdot}\right|$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}} \ln\left|\frac{2\cdot\left(x+\frac{5}{2}\right)-\sqrt{41}}{2\cdot\left(x+\frac{5}{2}\right)}\right|$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}} \ln\left|\frac{2\cdot\left(x+\frac{5}{2}\right)-\sqrt{41}}{2\cdot\left(x+\frac{5}{2}\right)+\sqrt{41}}\right|$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}} \ln\left|\frac{2\cdot\left(x+\frac{5}{2}\right)-\sqrt{41}}{2\cdot\left(x+\frac{5}{2}\right)+\sqrt{41}}\right| + C$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}} \ln\left|\frac{2\cdot\left(x+\frac{5}{2}\right)-\sqrt{41}}{2\cdot\left(x+\frac{5}{2}\right)+\sqrt{41}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2x+5-\sqrt{41}}{2x+5+\sqrt{41}}\right| + C$$

$$\int \frac{\mathrm{d}x}{x^2+5x-4} = \int \frac{\mathrm{d}x}{\left(x+\frac{5}{2}\right)^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \left[\begin{array}{c} x+\frac{5}{2} = t \,/\, ' \\ \mathrm{d}x = \mathrm{d}t \end{array}\right] =$$

$$= \int \frac{\mathrm{d}t}{t^2 - \left(\frac{\sqrt{41}}{2}\right)^2} = \frac{1}{2\cdot\frac{\sqrt{41}}{2}} \ln\left|\frac{t-\frac{\sqrt{41}}{2}}{t+\frac{\sqrt{41}}{2}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2t-\sqrt{41}}{2t+\sqrt{41}}\right| + C = \frac{1}{\sqrt{41}} \ln\left|\frac{2\cdot\left(x+\frac{5}{2}\right)-\sqrt{41}}{2\cdot\left(x+\frac{5}{2}\right)+\sqrt{41}}\right| + C =$$

$$= \frac{1}{\sqrt{41}} \ln\left|\frac{2x+5-\sqrt{41}}{2x+5+\sqrt{41}}\right| + C, \quad C\in\mathbb{R}$$

deseti zadatak

Zadatak 10

Riješite neodređeni integral $\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x =$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x.$

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{}{}$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{}{x^2+5x-4}$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x.$

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{(2x+5)}{x^2+5x-4}$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)}{x^2+5x-4}$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x$$

Zadatak 10

Riješite neodređeni integral $\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

$$= \frac{5}{2}$$

Zadatak 10

Riješite neodređeni integral $\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x -$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x - \frac{19}{2}$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x - \frac{19}{2}\int \frac{\mathrm{d}x}{x^2+5x-4}$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

Rješenje

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x - \frac{19}{2}\int \frac{\mathrm{d}x}{x^2+5x-4} =$$

$$= \frac{5}{2}$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x - \frac{19}{2}\int \frac{\mathrm{d}x}{x^2+5x-4} =$$

$$= \frac{5}{2}\ln\left|x^2+5x-4\right|$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x.$

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5) - \frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x - \frac{19}{2}\boxed{\int \frac{\mathrm{d}x}{x^2+5x-4}} =$$

prethodni zadatak

$$= \frac{5}{2}\ln\left|x^2+5x-4\right| - \frac{19}{2}\cdot$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

prethodni zadatak

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x - \frac{19}{2}\boxed{\int \frac{\mathrm{d}x}{x^2+5x-4}} =$$

$$= \frac{5}{2}\ln\left|x^2+5x-4\right| - \frac{19}{2}\cdot\frac{1}{\sqrt{41}}\ln\left|\frac{2x+5-\sqrt{41}}{2x+5+\sqrt{41}}\right|$$

Zadatak 10

Riješite neodređeni integral $\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

prethodni zadatak

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x - \frac{19}{2}\boxed{\int \frac{\mathrm{d}x}{x^2+5x-4}} =$$

$$= \frac{5}{2}\ln\left|x^2+5x-4\right| - \frac{19}{2}\cdot\frac{1}{\sqrt{41}}\ln\left|\frac{2x+5-\sqrt{41}}{2x+5+\sqrt{41}}\right| + C$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x.$

Rješenje

$$\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C$$

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

prethodni zadatak

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x - \frac{19}{2}\boxed{\int \frac{\mathrm{d}x}{x^2+5x-4}} =$$

$$= \frac{5}{2}\ln\left|x^2+5x-4\right| - \frac{19}{2}\cdot\frac{1}{\sqrt{41}}\ln\left|\frac{2x+5-\sqrt{41}}{2x+5+\sqrt{41}}\right| + C =$$

$$= \frac{5}{2}\ln\left|x^2+5x-4\right| - \frac{19}{2\sqrt{41}}\ln\left|\frac{2x+5-\sqrt{41}}{2x+5+\sqrt{41}}\right| + C$$

Zadatak 10

Riješite neodređeni integral $\displaystyle\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x$.

$$\boxed{\int \frac{f'(x)}{f(x)}\,\mathrm{d}x = \ln\left|f(x)\right| + C}$$

Rješenje

$$\int \frac{5x+3}{x^2+5x-4}\,\mathrm{d}x = \int \frac{\frac{5}{2}\cdot(2x+5)-\frac{19}{2}}{x^2+5x-4}\,\mathrm{d}x =$$

prethodni zadatak

$$= \frac{5}{2}\int \frac{2x+5}{x^2+5x-4}\,\mathrm{d}x - \frac{19}{2}\boxed{\int \frac{\mathrm{d}x}{x^2+5x-4}} =$$

$$= \frac{5}{2}\ln\left|x^2+5x-4\right| - \frac{19}{2}\cdot\frac{1}{\sqrt{41}}\ln\left|\frac{2x+5-\sqrt{41}}{2x+5+\sqrt{41}}\right| + C =$$

$$= \frac{5}{2}\ln\left|x^2+5x-4\right| - \frac{19}{2\sqrt{41}}\ln\left|\frac{2x+5-\sqrt{41}}{2x+5+\sqrt{41}}\right| + C, \quad C \in \mathbb{R}$$