



Methods of integral calculus

Interactive tests

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ROBERT MAŘÍK
Methods of integration
file int-meth.tex

Look at three or four or twenty my quizzes
and then fill in my please!



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Given an integral, you have to be able to recognize, which of the methods of integral calculus should be employed to evaluate this integral. Possible answers include: (always prefer the simplest possibility)

- **formulas**: The basic formulas are sufficient to evaluate the integral. Includes composite functions with linear inside function (formula $\int f(ax + b)dx$) and formula $\int \frac{f'(x)}{f(x)}dx$.
- **partial fractions**: We have to write the function as sum of partial fractions and then integrate. If the function is not proper, we have to divide first.
- **by parts**: The integral is typical for integration by parts.
- **substitution**: The method of substitution allows to evaluate the integral.
- **another technique**: None of these techniques is convenient for this integral.

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Here you can practice managing the test.

- click `Begin Quiz`,
- fill your answers (you can make an error to see, how incorrect answers are corrected),
- click `End Quiz`,
- click `Correct my answers` to see correct answers.

formulas

partial fractions

by parts

substitution

another technique

Mark the correct answer

1. formulas
2. partial fractions
3. by parts
4. another technique
5. substitution

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Mark the correct answer

1. $\int xe^x dx$

2. $\int \frac{x}{x^2 + 1} dx$

3. $\int \frac{x + 1}{(x - 1)^2} dx$

4. $\int x + \sin x dx$

5. $\int xe^{-x^2} dx$

6. $\int \frac{\cos x}{\sin^4 x} dx$

7. $\int (x^2 + 1) \sin x dx$

8. $\int \ln x dx$

Mark the correct answer

1. $\int \frac{1}{x-2} dx$

2. $\int \frac{\sqrt{x}+1}{x+2} dx$

3. $\int \frac{1}{(1-x)^2} dx$

4. $\int e^{2x} dx$

5. $\int \frac{x}{e^{2x}} dx$

6. $\int \sin^3 x dx$

7. $\int \frac{\ln x}{x} dx$

8. $\int \frac{1}{x^2+x+1} dx$

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Mark the correct answer

1. $\int (x^2 + 1)x^3 dx$

2. $\int \frac{x^2 - 1}{x(x^2 + 1)} dx$

3. $\int \frac{a \tan^2 x}{1 + x^2} dx$

4. $\int x^2 + 1 + e^{-x} dx$

5. $\int x \operatorname{atan} x dx$

6. $\int 1 dx$

7. $\int \frac{1}{\sqrt{x}} dx$

8. $\int (x^2 - 3)^3 dx$

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