

## Ćwiczenie 13. CDF Player. Projekty demonstracyjne.


### WebMathematica: możliwości analityczne i wizualizacyjne. Elementy programowania. Symulacja.

→ C demonstrations.wolfram.com/download-cdf-player.html

 **Wolfram Demonstrations Project** 8606 Interactive Demonstrations  
Powered by CDF Technology »

SEARCH TOPICS LATEST ABOUT PARTICIPATE AUTHORIZING AREA

#### Download Wolfram CDF Player

 **Windows 8/7/Vista/XP** (165 MB)  
Includes plugin for Internet Explorer, Firefox, Chrome, Opera & Safari. [Other platform?](#)

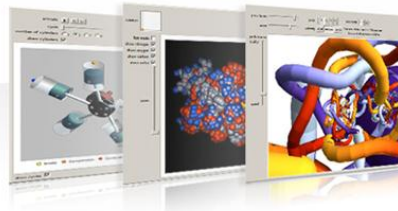
Which of the following best describes you?  
Choose one ...

Email address:

By downloading and installing this application, you agree to the [Wolfram CDF Player license agreement](#).

[Start Download](#)

*It's FREE, so give it a try today!*



#### Once you install CDF Player, you'll be able to...

- ✓ Interact with all inputs, sliders, and controls
- ✓ Explore Demonstrations right in your web browser
- ✓ Manipulate 2D and 3D graphics in Demonstrations

#### Computable Document Format (CDF)

Documents come alive with the power of computation  
Powering the next generation of interactive documents, blogs, reports, presentations, articles, books, courseware, information and knowledge applications, and more. [Learn more about CDF; explore uses and examples »](#)

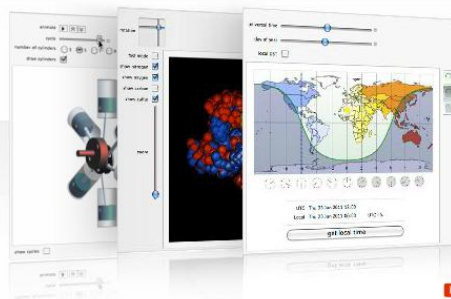
→ C demonstrations.wolfram.com

SEARCH TOPICS LATEST ABOUT PARTICIPATE AUTHORIZING AREA

## Bring ideas to life

from recreation & education  
to research & industry

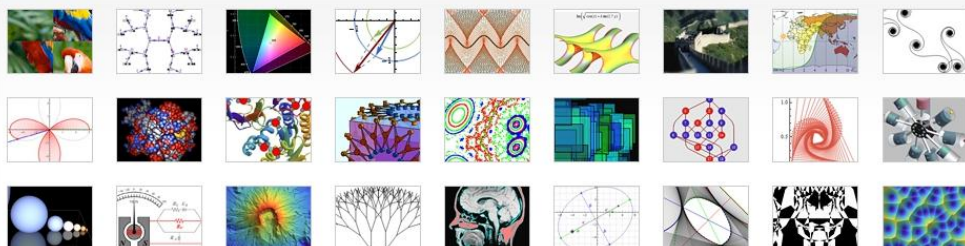
[Start exploring »](#)



[Full video](#)

#### FEATURED DEMONSTRATIONS

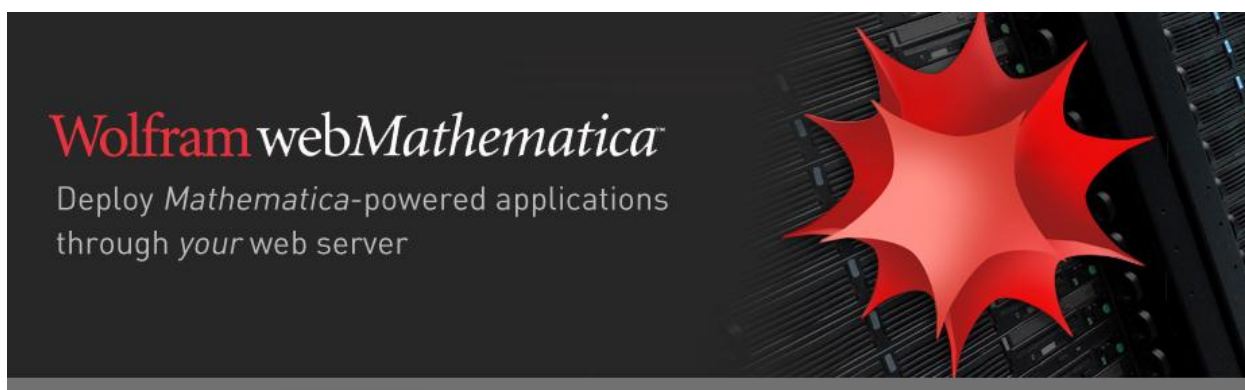
[View latest »](#)



<http://www.wolfram.com/products/webmathematica/>

I. Proszę zapoznać się z materiałem „Nowe funkcje webMathematica”:

 [reference.wolfram.com/mathematica/webMathematica/tutorial/NewFeatures.html](http://reference.wolfram.com/mathematica/webMathematica/tutorial/NewFeatures.html)



Powered by *Mathematica* 10, *webMathematica* 3.3 adds dynamic content to your website.

Websites with sliders and other interactive controls compute new results when parameters change. Graphics, including 3D images, can be rotated in the browser. It's all powered by *Mathematica*'s computation and visualization capabilities and *webMathematica*'s robust, automatic server deployment that scales for high traffic and works seamlessly with modern web standards and services.

[Get webMathematica Now](#)

Featured *webMathematica* Examples

- [What Is webMathematica?](#)
- [Key Advantages](#) ▶
- [Technology](#) ▶
- [Examples](#)

Za pomocą <http://www.calc101.com>

## Calc101.com Automatic Calculus and Algebra Help

derivatives, integrals, graphs, linear equations, matrix algebra

automatic calculus help on the web NOW...

- no software download, no sign up hassle
- anytime, anywhere
- solutions just like your math textbook

free graphs...

- see zeros, y-intercept, min/max, inflection points
- see intervals of increase, decrease, concavity, vertical asymptotes

free steps...

- first and second derivatives, partial fractions
- systems of linear equations and over 80 matrix algebra operations

POWERED BY  
**web**MATHEMATICA

**Zadanie 1.** Stwórz macierze

$$A = \begin{bmatrix} -1 & 0 & 1 \\ 2 & 3 & 4 \\ 8 & 7 & 5 \end{bmatrix} \text{ i } B = \begin{bmatrix} 5 & 4 & 3 \\ -2 & 1 & 0 \\ 6 & 8 & -9 \end{bmatrix}.$$

Obliczyć: a)  $AB$  i  $BA$ ;

b) wyznaczniki dla  $A$  i  $B$ ;

c)  $5A - 8B$ ;

d) odwrotną macierz dla  $A$  i  $B$ ;

e)  $A^4$ .

f) znaleźć rozwiązanie układu  $Ax = \begin{bmatrix} 4 \\ 2 \\ 3 \end{bmatrix}$ .

**Zadanie 2.** Niech  $P = (-2, -4)$ ,  $Q = (3, 5)$ .

Obliczyć: a) długość  $PQ$ ;

b) midpoint  $PQ$ ;

c) obliczyć równanie prostej  $PQ$ ;

d) narysować rysunek.

**Zadanie 3.** Obliczyć pochodne  $f'$ ,  $f''$  dla

a)  $f = \cos(2 \ln x)$ ;      b)  $f = e^{\sin(x+\pi)}$ ;      c)  $f = \frac{x^5+8}{(2x-3)^2}$ .

**Zadanie 4.** Znajdź częściowy rozkład frakcyjny

(Find the partial fraction decomposition of) :  $\frac{x^2-4x+8}{(x^2-4)(x^2-4)}$ .

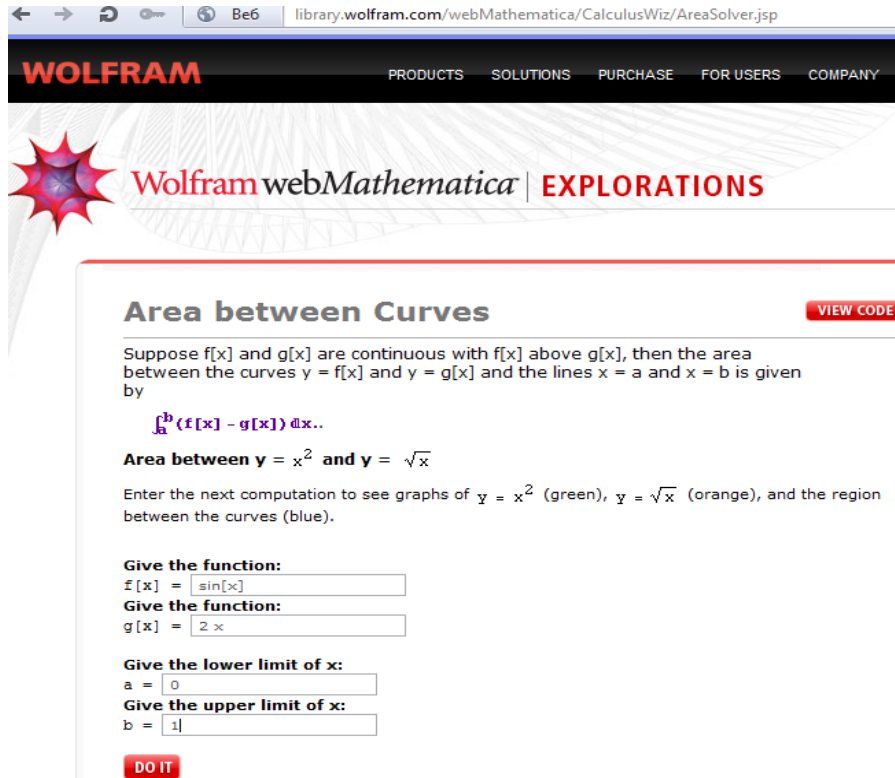
**Przykład 1:**

The screenshot shows the Wolfram Mathematica Online Integrator interface. At the top, it says "Wolfram Mathematica ONLINE INTEGRATOR" and "The world's only full-power integration solver". Below this, there is a search bar containing the input "Sin[a x]^(2 m)" and a button labeled "Compute Online With Mathematica". Above the search bar, there are links for "HOW TO ENTER INPUT" and "RANDOM EXAMPLE". Below the search bar, there are links for "Traditional Form", "Input Form", and "Output Form". The main result area shows the integral  $\int \sin^{2m}(ax) dx =$  followed by two expressions:  $-\frac{1}{a} \cos(ax) \sin^{2m+1}(ax)$  and  $\sin^2(ax)^{-m-\frac{1}{2}} {}_2F_1\left(\frac{1}{2}, \frac{1}{2} - m; \frac{3}{2}; \cos^2(ax)\right)$ . At the bottom right, it says "Time to compute: 0.12 second".

**Zadanie 5.** Za pomocą integratora <http://integrals.wolfram.com/index.jsp> obliczyć całki:

- a)  $\int (\cos x^2 + 3^x x) dx;$
- b)  $\int (x \ln x^2 + e^x x^3) dx;$
- c)  $\int (4 a \sin^2 x - 5 \operatorname{tg} x) dx.$

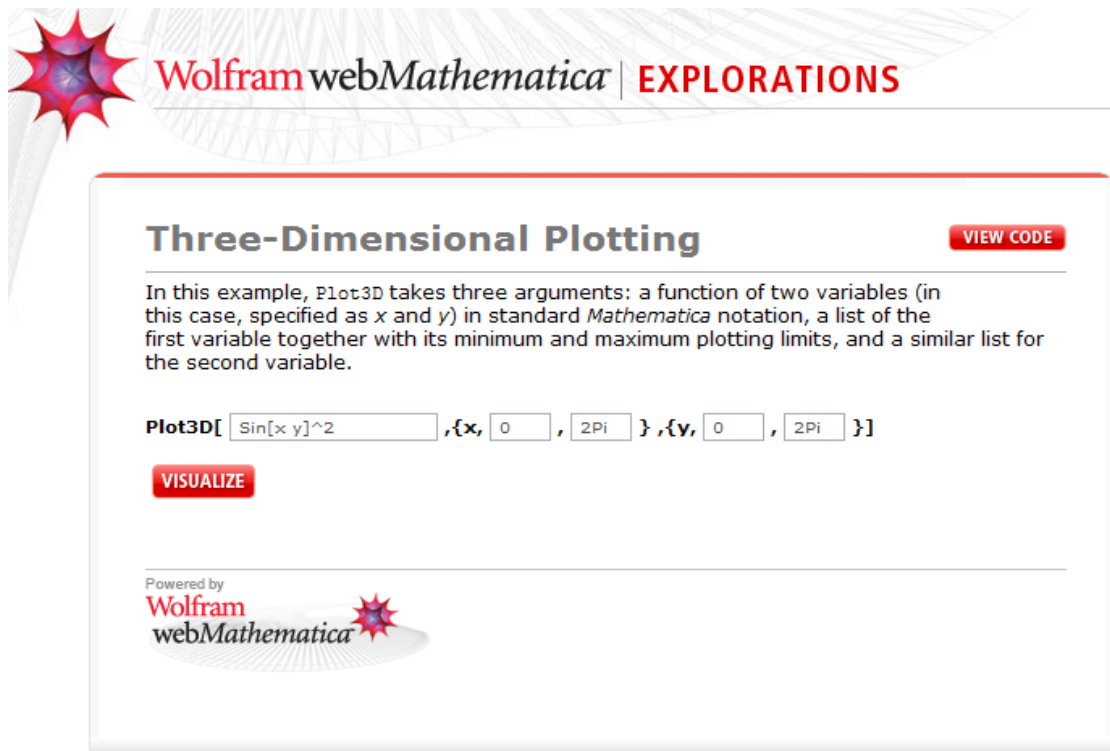
## Przykład 2.



The screenshot shows the 'Area between Curves' page on Wolfram webMathematica. The page title is 'Area between Curves' with a 'VIEW CODE' button. The text explains that for continuous functions  $f(x)$  and  $g(x)$  where  $f(x) > g(x)$ , the area between the curves  $y = f(x)$  and  $y = g(x)$  from  $x = a$  to  $x = b$  is given by the integral  $\int_a^b (f(x) - g(x)) dx$ . The example problem asks for the area between  $y = x^2$  and  $y = \sqrt{x}$  from  $x = 0$  to  $x = 1$ . The input fields are filled with:  $f(x) = \sin[x]$ ,  $g(x) = 2 \cdot x$ ,  $a = 0$ , and  $b = 1$ . A 'DO IT' button is at the bottom.

**Zadanie 6.** Obliczyć pole między krzywymi  $y = \cos x$  i  $y = x^{1/2}$ , gdzie  $0 \leq x \leq 3 \pi$ .

## Przykład 3.



The screenshot shows the 'Three-Dimensional Plotting' page on Wolfram webMathematica. The page title is 'Three-Dimensional Plotting' with a 'VIEW CODE' button. The text explains that the `Plot3D` function takes three arguments: a function of two variables, a list of plotting limits for the first variable, and a list of plotting limits for the second variable. The input fields are filled with: `Sin[x y]^2`, `{x, 0, 2Pi}`, and `{y, 0, 2Pi}`. A 'VISUALIZE' button is at the bottom.

**Zadanie 7.** Narysować wykres powierzchni  $z = x - \cos(xy)^4$ , gdzie  $0 \leq x \leq 2 \pi$ ,  $0 \leq y \leq 2 \pi$ .