

Podstawy Maxima

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Narzędzia obliczeniowe fizyki

UJ WFAIS 2023/2024



<https://maxima.sourceforge.io/>

Maxima

A Computer Algebra System

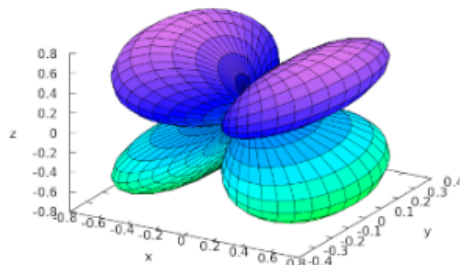
عربي Deutsch Español Italiano Nederlands Português Русский Türkçe 中文

```
%i1) 'integrate (x/(1 + x^3), x);
%o1) 
$$\int \frac{x}{x^3 + 1} dx$$

%i2) Z. integrate;
%o2) 
$$\frac{\log(x^2 - x + 1)}{6} + \frac{\arctan\left(\frac{2x-1}{\sqrt{3}}\right)}{\sqrt{3}} - \frac{\log(x+1)}{3}$$

%i3) laplace (exp (2*t + a) * sin(t) * t, t, s);
%o3) 
$$\frac{e^a (2s - 4)}{(s^2 - 4s + 5)^2}$$

```



Maxima is a system for the manipulation of symbolic and numerical expressions, including differentiation, integration, Taylor series, Laplace transforms, ordinary differential equations, systems of linear equations, polynomials, sets, lists, vectors, matrices and tensors. Maxima yields high precision numerical results by using exact fractions, arbitrary-precision integers and variable-precision floating-point numbers. Maxima can plot functions and data in two and three dimensions.

The Maxima source code can be compiled on many systems, including Windows, Linux, and MacOS X. The source code for all systems and precompiled binaries for Windows and Linux are available at the [SourceForge file manager](#).

History

Maxima is a descendant of Macsyma, the legendary computer algebra system developed in the late 1960s at the [Massachusetts Institute of Technology](#). It is the only system based on that effort still publicly available and with an active user community, thanks to its open source nature. Macsyma was revolutionary in its day, and many later systems, such as Maple and Mathematica, were inspired by it.

The Maxima branch of Macsyma was maintained by [William Schelter](#) from 1982 until he passed away in 2001. In 1998 he obtained [permission to release the source code](#) under the GNU General Public License (GPL). It was his efforts and skill which have made the survival of Maxima possible, and we are very grateful to him for volunteering his time and expert knowledge to keep the original DOE Macsyma code alive and well. Since his death, a group of users and developers has formed to bring Maxima to a wider audience.

Downloads

Documentation

The Maxima Project

Mailing Lists

FAQ

Computer Algebra Systems

Maxima and Lisp

Third Party Code

Related Projects

Recent Releases

Click on a version number to see the list of main changes.

[5.47.0](#): May 31, 2023

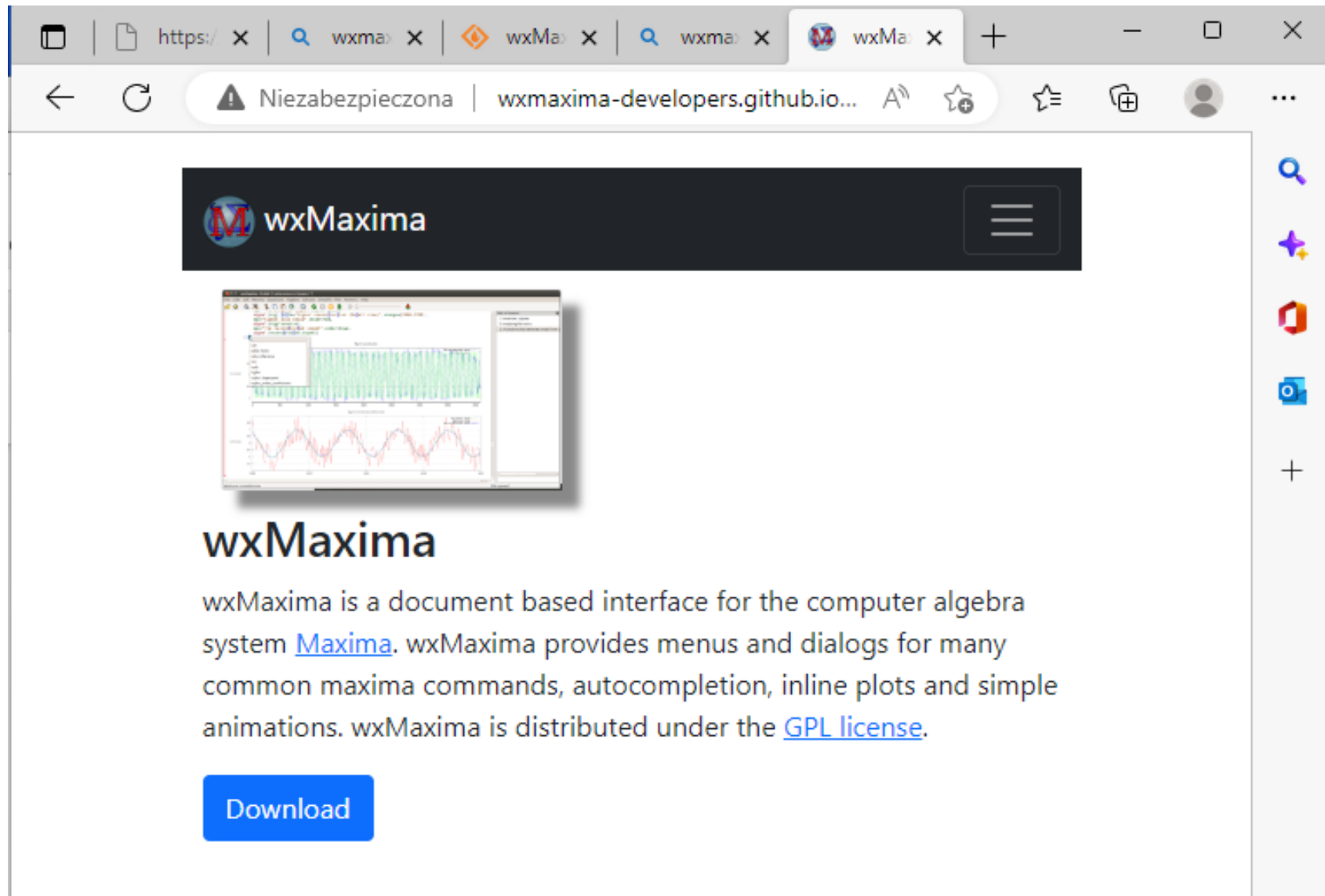
[5.46.0](#): April 13, 2022

[5.45.1](#): June 21, 2021

[5.45.0](#): May 24, 2021

[5.44.0](#): June 8, 2020

<http://wxmaxima-developers.github.io/wxmaxima/>



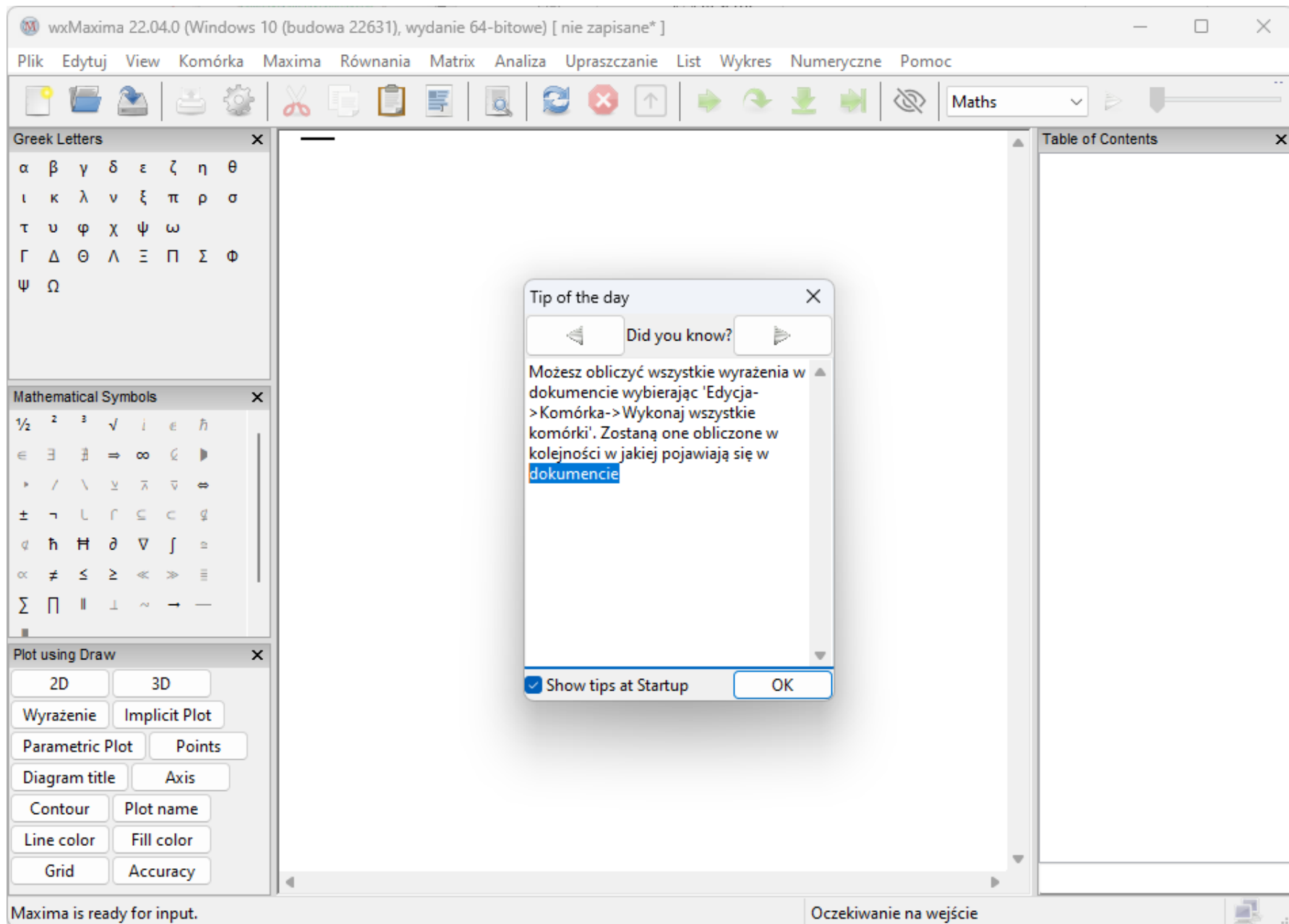
The screenshot shows a web browser window with the URL <http://wxmaxima-developers.github.io/wxmaxima/>. The browser's address bar shows the URL and a security warning "Niezabezpieczona" (Not secure). The website has a dark header with the "wxMaxima" logo and a hamburger menu icon. Below the header is a screenshot of the wxMaxima software interface, which displays a document with code and two plots: a bar chart and a line graph. The main content area features the title "wxMaxima" in a large, bold font, followed by a paragraph describing it as a document-based interface for the computer algebra system Maxima. The text mentions that wxMaxima provides menus, dialogs, autocomplete, inline plots, and simple animations, and is distributed under the GPL license. A blue "Download" button is positioned at the bottom of the main content area. The browser's sidebar on the right contains several icons, including a search icon, a plus icon, and a Microsoft Edge icon.

wxMaxima

wxMaxima is a document based interface for the computer algebra system [Maxima](#). wxMaxima provides menus and dialogs for many common maxima commands, autocomplete, inline plots and simple animations. wxMaxima is distributed under the [GPL license](#).

Download

Pusty zeszyt programu wxMaxima



Początek zeszytu *Jacek_Golak_Maxima_elementarz.wxmx*

wxMaxima 22.04.0 (Windows 10 (budowa 22621), wydanie 64-bitowe) [Jacek_Golak_Maxima_elementarz.wxmx]

Plik Edytuj View Komórka Maxima Równania Matrix Analiza Upraszczanie List Wykres Numeryczne Pomoc

Greek Letters

Mathematical Symbols

Plot using Draw

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```
→ /*
Na początek tzw. test Knutha: liczymy proste wyrażenie (4/3-1)*3-1.
Wynik dowodzi, że mamy do czynienia z dokładnym rachunkiem.
*/
(4/3-1)*3-1;
(%o1) 0

→ /*
Jak kontrolować wypisywanie wyrażeń ?
*/
print(" (4/3-1)*3-1= ",(4/3-1)*3-1 );
(4/3-1)*3-1= 0
(%o2) 0

→ /* MAXIMA zna bardzo wiele różnych funkcji */
1/3 + 4/3 + 5/2*sin(log(11+cos(234)))+tan(-27)/asin(1/9);
(%o3) 
$$\frac{5 \sin(\log(\cos(234)+11))}{2} - \frac{\tan(27)}{\operatorname{asin}\left(\frac{1}{9}\right)} + \frac{5}{3}$$


→ /* Wartość przybliżona jest regulowana przez zmienną fpprec ... */
fpprec;
(%o4) 16
```

Maxima is ready for input.

File opened

*Zeszyt Jacek_Golak_Maxima_elementarz.wmxm oraz inne zeszyty
Zgromadzone w kartotece MATERIALY_DO_MAXIMA pokazują, jak
wykonać te same zadania, które realizowaliśmy w programie
Mathematica. W szczególności możliwe są działania na liczbach
zespółonych, rozwiązywanie równań, rysowanie wykresów w różnej
postaci, działania na macierzach, szukanie wartości i wektorów
własnych, rozwiązywanie równań różniczkowych itd.*

Reszta jest ćwiczeniem !