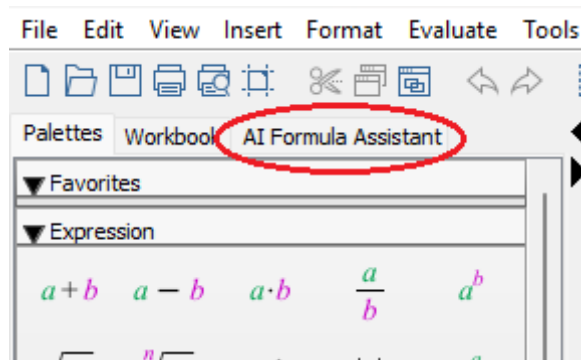


AI in Maple

Maple 2024 includes a new interface to powerful AI technology. There are two ways to access AI technology in Maple 2024. The **AI Formula Assistant** is an innovative tool designed to help you find formulas and equations you need. The **NaturalLanguage** package offers commands for connecting with the AI to find explanations, expressions, or even Maple commands.

The AI Formula Assistant

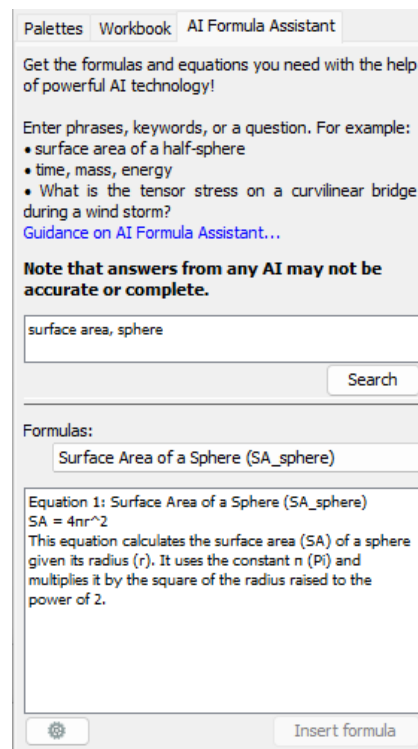
AI Formula Assistant is found on the left side of the Maple window. Click the **AI Formula Assistant** tab to activate that pane.



Simply ask a question, phrase, or comma-separated words, and search using AI.

For example, you could search for:

- What is the law of sines?
- surface area, sphere
- functional equation of the Riemann zeta function
- resistance of five resistors connected in parallel
- friction factor in turbulent flow
- non-ideal diode equation



In response to your query, you'll get a number of related formulas. For each, the provided information consists of the equation, any context, and a description of the variables that appear in the equation. Once you've made your selection, you can insert your chosen formula into your document.

Before using this feature, you'll need to agree to the terms of use.

- Click the **AI Terms of Use** button
- Read and accept the terms and click **Apply Globally**.

For details, see [Using the AI Formula Assistant](#).

Notes:

- It can take some time for a response to appear. You can continue to use Maple while waiting for a response. Responses are cached, so if you search for the same phrase again, you will notice the response can be much quicker.
- This feature relies on sending your query to a third party AI tool, and, as a result, the answers you get may not be accurate or complete. Maplesoft cannot control the quality of the response.
- An equation inserted from the AI Formula Assistant may need to be edited to be in proper Maple notation.
- At times, you may encounter an error message when you try to insert an equation. In such a case, you may still be able to manually copy and paste from the AI Search Assistant into the worksheet.

The NaturalLanguage Package

The new [NaturalLanguage](#) package offers commands that can also be used to explore using large language models such as GPT-4 and ChatGPT from OpenAI for processing natural language in Maple.

As with the AI Formula Assistant, before using the NaturalLanguage package, you must agree to the **AI Terms of Use**.

> *with(NaturalLanguage)*

[Explain, GetCommand, GetMath, Query, RawQuery]

> *Explain("polar coordinates")*

"Polar coordinates are a two-dimensional coordinate system in which each point on a plane is determined by a distance from a reference point (often called the pole or origin) and an angle from a

reference direction (usually the positive x-axis). These two values are often represented as (r, θ) , where r is the distance and θ is the angle in radians or degrees.

This system is especially useful in situations where the relationship between two points is more conveniently expressed in terms of angles and distance, instead of horizontal and vertical distances as in the Cartesian (or rectilinear) coordinate system (x, y) . In many fields, including physics, engineering, and graphics, polar coordinates can simplify calculations. For instance, they allow easy computation of spiral patterns and circular paths."

> `GetMath("surface area of a cylinder")`

$$SA = 2 \pi r (r + h)$$

> `GetCommand("How do I solve an equation numerically?, model=ChatGPT")`

$$fsolve(expression = 0, x = a..b)$$

Note: The answers are coming from a third party AI tool, and may not be accurate. This means even when asked to give a Maple command using `GetCommand`, it may not return a correct response.