

PRACTICA DE PROGRAMACION

Manual de usuario

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1. DESCRIPTION

Our system is a web page that allows the user to use different quantitative methods online, which will be available on the site.

2. MINIMAL KNOWLEDGE

The user that will use the website must have a knowledge of the methods that they will use, equally if them misuses the page, the page will be able to support the error of the action.

3. TECHNICAL REQUIREMENTS

An internet connection is required, and a browser that supports JavaScript

4. BASIC FUNTIONS

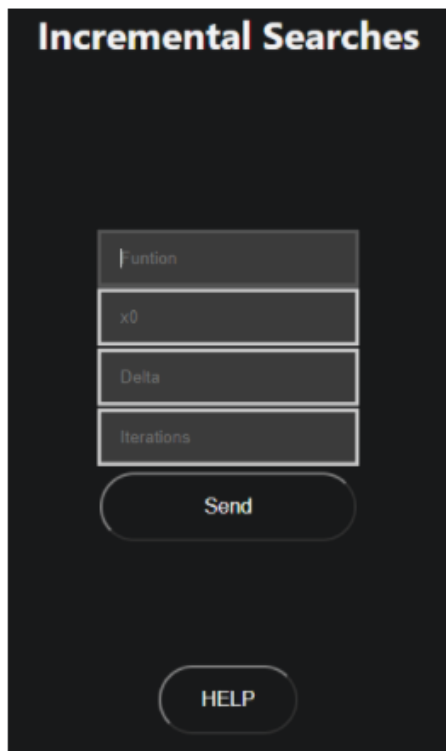
Incremental Searches

November 22, 2021 · One min read

Welcome to help section of Incremental searches explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Function to evaluate
- X_0 : start point
- Delta: to find the value with an error less than delta
- Iterations: or maximum iteration that your need to execute this method

[How to write a function](#)

Example

- Function $f(x): (x-1)^3 - 2x^2 + x$
- X_0 : -1
- Delta: 0.5
- Iterations: 32

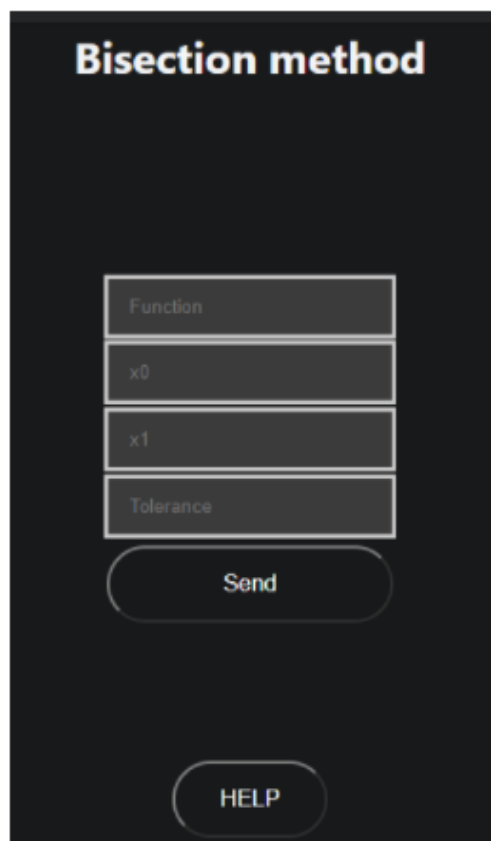
Bisection

November 22, 2021 • One min read

Welcome to help section of bisection explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

A screenshot of a web application titled "Bisection method" in white text on a dark background. Below the title, there are four stacked rectangular input fields with white borders and placeholder text: "Function", "x0", "x1", and "Tolerance". Below these fields is a rounded rectangular button with the text "Send". At the bottom of the form is another rounded rectangular button with the text "HELP".

Bisection method

Function

x0

x1

Tolerance

Send

HELP

- Function to evaluate
- X_0 : Initial value of range
- X_1 : Final value of range
- Tolerance: value with error lower or equal than tolerance

[How to write a function](#)

Example

- $f(x): x^3-5$
- $X_0: 1.5$
- $X_1: 1.75$
- Tolerance: $1e-5$

Regula Falsi

November 22, 2021 · One min read

Welcome to help section of Regula Falsi explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

A screenshot of a web application titled "Regula Falsi" on a dark background. It features four stacked rectangular input fields with light gray borders and placeholder text: "Function", "x0", "x1", and "Tolerance". Below these fields is a rounded rectangular button with the text "Send".

Regula Falsi

Function

x0

x1

Tolerance

Send

- Function to evaluate
- X_0 : Initial value of range
- X_1 : Final value of range
- Tolerance: value with error lower or equal than tolerance

[How to write a function](#)

Example

- Function: x^3-5
- X_0 : 1.5
- X_1 : 1.75
- Tolerance: $1e-5$

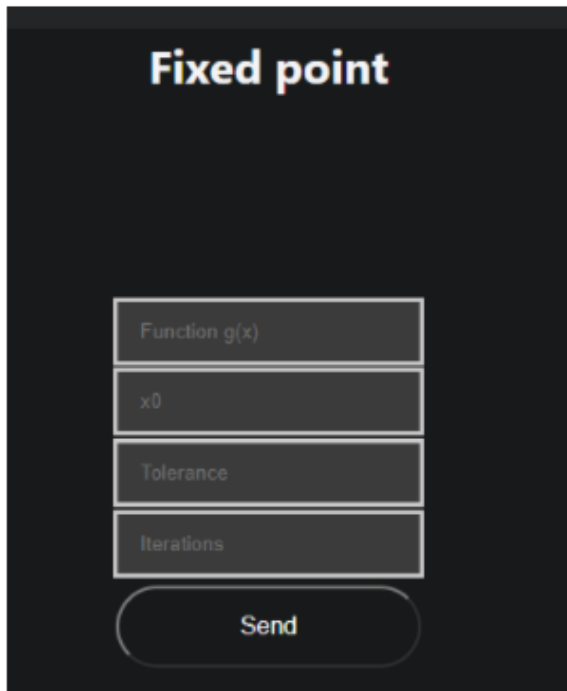
Fixed Point

November 22, 2021 · One min read

Welcome to help section of Fixed point explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

A dark-themed user interface for a 'Fixed point' calculator. It features a title 'Fixed point' at the top. Below the title are four stacked input fields with labels: 'Function g(x)', 'x0', 'Tolerance', and 'Iterations'. At the bottom of the form is a rounded rectangular button labeled 'Send'.

- Function to evaluate
- X_0 : start point
- Tolerance: to find the value with an error less than delta
- Iterations: or maximum iteration that you need to execute this method

[How to write a function](#)

Example

- Function $g(x)$: x^3-5
- X_0 : 1
- Tolerance: $1e-5$
- Iterations: 10

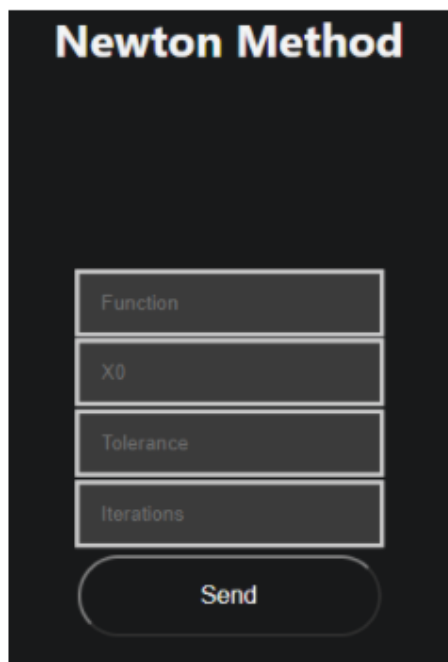
Newton

November 22, 2021 · One min read

Welcome to help section of Newton method explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

A dark-themed user interface for the Newton Method. It features a title "Newton Method" at the top. Below the title are four stacked rectangular input fields with light gray borders and placeholder text: "Function", "X0", "Tolerance", and "Iterations". At the bottom of the form is a rounded rectangular button with the text "Send".

Newton Method

Function

X0

Tolerance

Iterations

Send

- Function to evaluate
- X0: start point
- Tolerance: to find the value with an error less than delta
- Iterations: or maximum iteration that your need to execute this method

[How to write a function](#)

Example

- Function: $\log(x^2 - 2x + 2)$
- X0: 0.5
- Delta: 0.005
- Iterations: 500

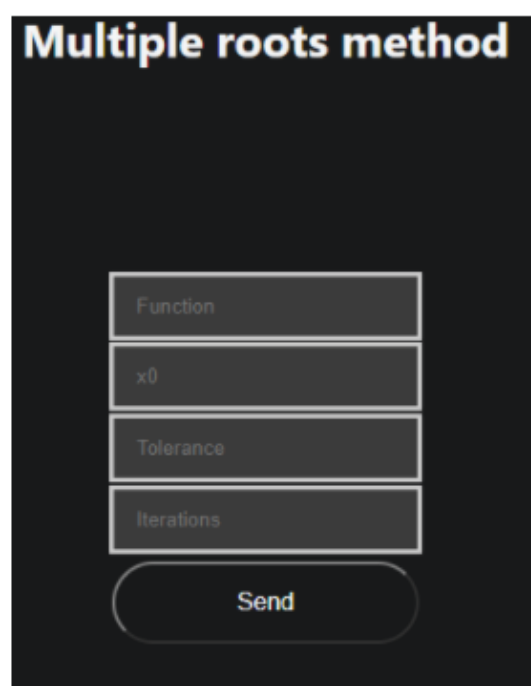
Multiple Roots

November 22, 2021 · One min read

Welcome to help section of Multiple roots explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

A screenshot of a web interface titled "Multiple roots method" in white text on a black background. Below the title, there are four stacked rectangular input fields with white borders and placeholder text: "Function", "x0", "Tolerance", and "Iterations". Below these fields is a rounded rectangular button with the text "Send" in white.

- Function to evaluate
- X_0 : start point
- Tolerance: to find the value with an error less than delta
- Iterations: or maximum iteration that your need to execute this method

[How to write a function](#)

Example

- Function $f(x)$: $x^3 - x^2 - 2x + 2 + \sin(x - 1)$
- X_0 : 0.5
- Delta: 0.005
- Iterations: 500

Secant

November 22, 2021 · One min read

Welcome to help section of Secant explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Function to evaluate
- X_0 : Initial value of range
- X_1 : Final value of range
- Tolerance: value with error lower or equal than tolerance
- Iterations: or maximum iteration that your need to execute this method

[How to write a function](#)

Example

- Function $f(x): x^5 - 5x + 3$
- $X_0: 0$
- $X_1: 0.5$
- Tolerance: $1e-5$
- Iterations: 100

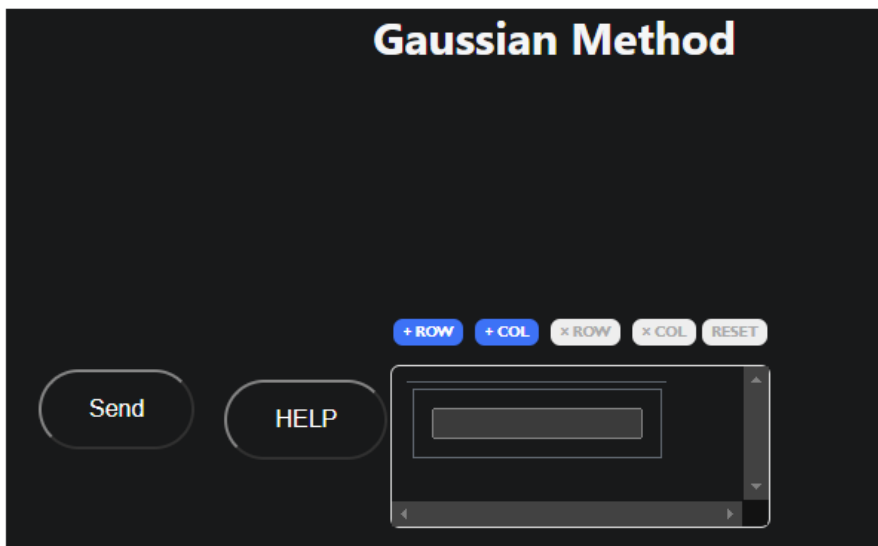
Gauss normal

November 22, 2021 · One min read

Welcome to help section of Gaussian method explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Matrix: Need to be as $M \times (M+1)$ the last column is for the independent vector x

Example

$$\left\{ \begin{array}{ccc|c} x & 4y & -z & = & -5 \\ x & y & -6z & = & -12 \\ 3x & y & -z & = & 4 \end{array} \right\} = \left[\begin{array}{ccc|c} 1 & 4 & -1 & -5 \\ 1 & 1 & -6 & -12 \\ 3 & 1 & -1 & 4 \end{array} \right]$$

Required matrix expressed as extended matrix

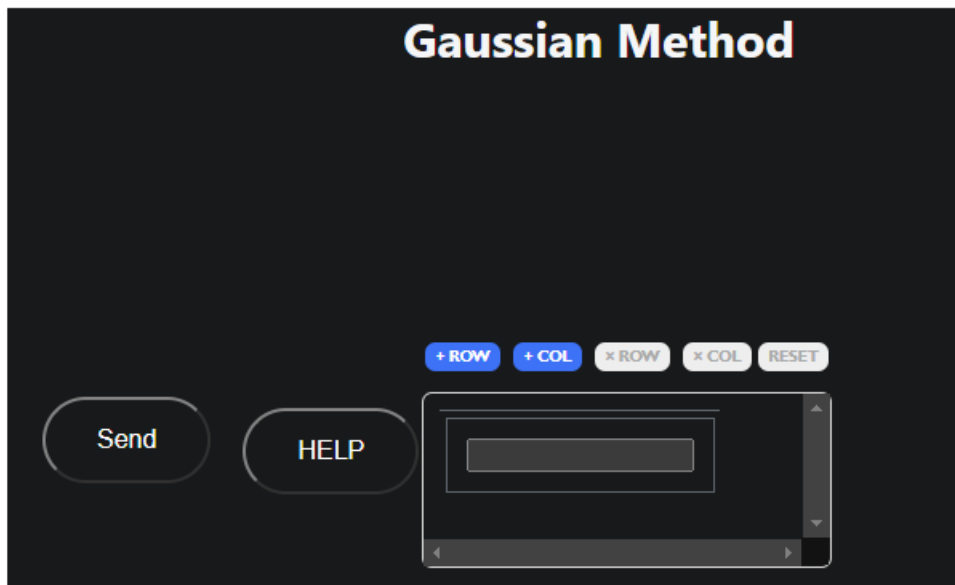
Gaussian Partial Pivoting

November 22, 2021 · One min read

Welcome to help section of Gaussian Partial Pivoting explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Matrix: Need to be as $M \times (M+1)$ the last column is for the independent vector x

Example

$$\left\{ \begin{array}{ccc|c} x & 4y & -z & -5 \\ x & y & -6z & -12 \\ 3x & y & -z & 4 \end{array} \right\} = \left[\begin{array}{ccc|c} 1 & 4 & -1 & -5 \\ 1 & 1 & -6 & -12 \\ 3 & 1 & -1 & 4 \end{array} \right]$$

Required matrix expressed as extended matrix

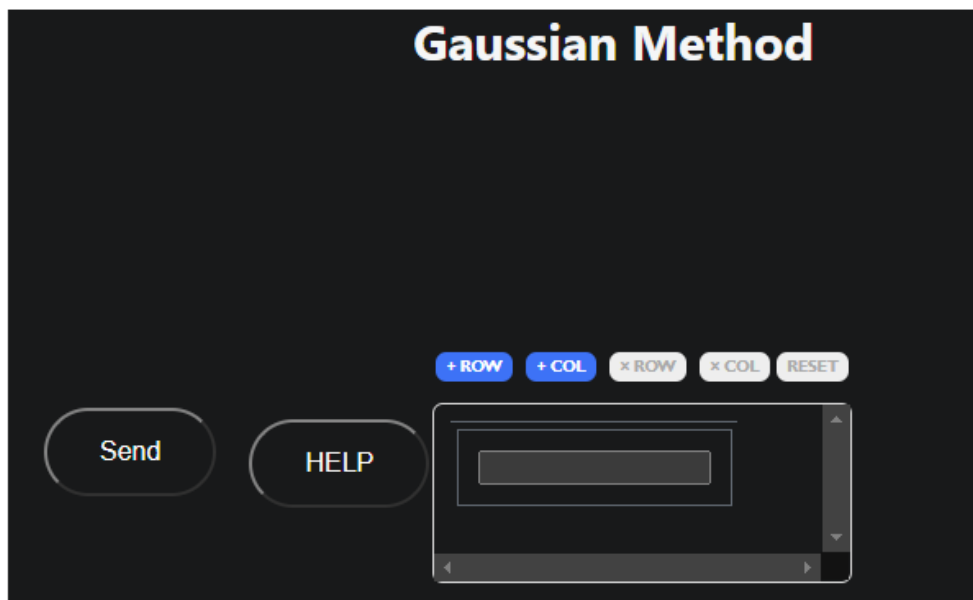
Gaussuian Total Pitoving

November 22, 2021 · One min read

Welcome to help section of Gaussuian Total Pitoving explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Matrix: Need to be as $M \times (M+1)$ the last column is for the independent vector x

Example

$$\begin{cases} x & 4y & -z & = & -5 \\ x & y & -6z & = & -12 \\ 3x & y & -z & = & 4 \end{cases} = \left[\begin{array}{ccc|c} 1 & 4 & -1 & -5 \\ 1 & 1 & -6 & -12 \\ 3 & 1 & -1 & 4 \end{array} \right]$$

Required matrix expressed as extended matrix

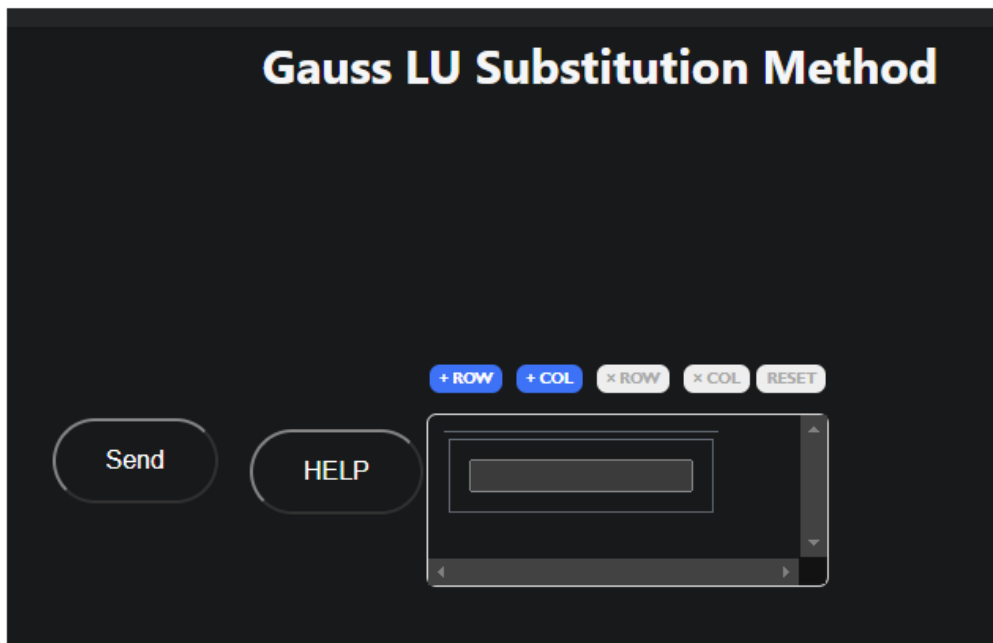
Gaussian simple (LU)

November 22, 2021 · One min read

Welcome to help section of Gaussian simple (LU) explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Matrix: Need to be as $M \times (M+1)$ the last column is for the independent vector x

Example

$$\left\{ \begin{array}{ccc|c} x & 4y & -z & -5 \\ x & y & -6z & -12 \\ 3x & y & -z & 4 \end{array} \right\} = \left[\begin{array}{ccc|c} 1 & 4 & -1 & -5 \\ 1 & 1 & -6 & -12 \\ 3 & 1 & -1 & 4 \end{array} \right]$$

Required matrix expressed as extended matrix

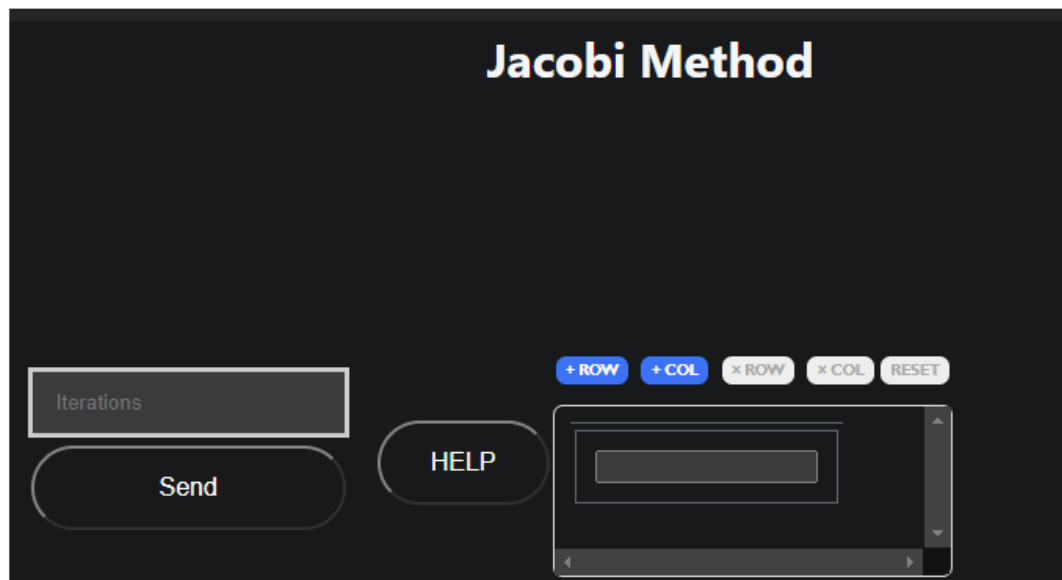
Jacobi

November 22, 2021 · One min read

Welcome to help section of Jacobi method explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



- Matrix: Need to be as $M \times (M+1)$ the last column is for the independent vector x
- Iterations: or maximum iteration that your need to execute this method

Example

- Matrix: $\begin{bmatrix} 2 & 1 & | & 11 \\ 5 & 7 & | & 3 \end{bmatrix}$

Required matrix expressed as extended matrix

- Iterations: 30

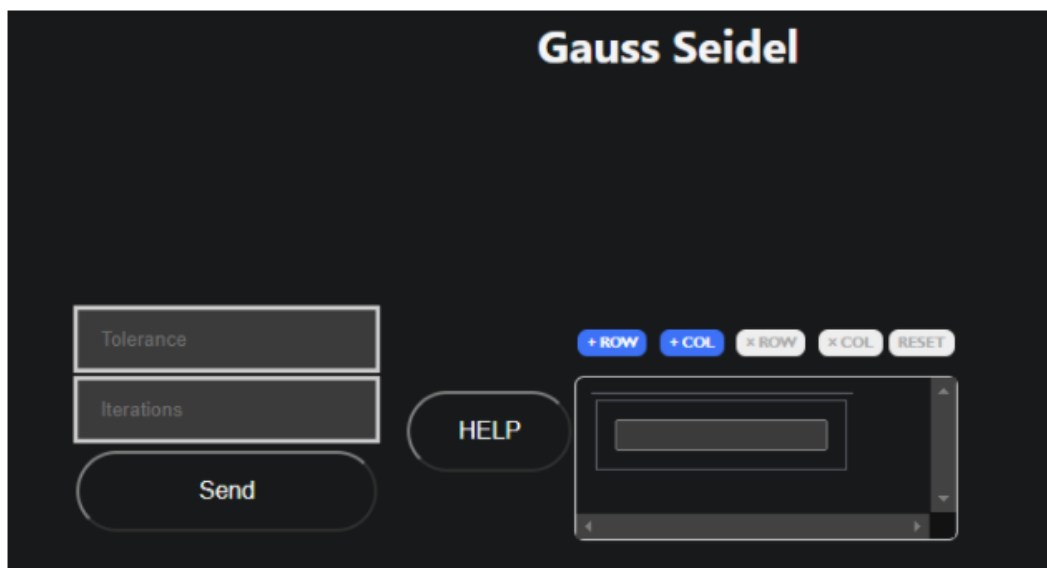
Gauss seidel

November 22, 2021 · One min read

Welcome to help section of Gaussuian Seidel explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters



The screenshot shows a web application titled "Gauss Seidel" on a dark background. On the left, there are two input fields labeled "Tolerance" and "Iterations". Below these is a large "Send" button. In the center, there is a circular "HELP" button. On the right, there is a control panel with five buttons: "+ ROW" (blue), "+ COL" (blue), "× ROW" (grey), "× COL" (grey), and "RESET" (grey). Below these buttons is a rectangular area with a scroll bar, containing a smaller input field.

- Matrix: Need to be as $M \times (M+1)$ the last column is for the independent vector x
- Tolerance: value with error lower or equal than tolerance
- Iterations: or maximum iteration that your need to execute this method

Example

- Matrix: $\begin{bmatrix} 16 & 3 & | & 11 \\ 7 & -11 & | & 3 \end{bmatrix}$

Required matrix expressed as extended matrix

- Tolerance: 0.005
- Iterations: 30

Lagrange

November 22, 2021 · One min read

Welcome to help section of Lagrange explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

A screenshot of a web form titled "Lagrange Method" in white text on a black background. The form contains three input fields: the first is labeled "X", the second is labeled "Y", and the third is labeled "xp". Below these fields is a rounded rectangular button labeled "Send".

Lagrange Method

X

Y

xp

Send

- X : x coordinates
- Y : y coordinates
- x_p : value to find

Example

- X : 0,1,2,5
- Y : 2,3,12,147
- x_p : 3

Express X and Y coordinates as values separated by a comma

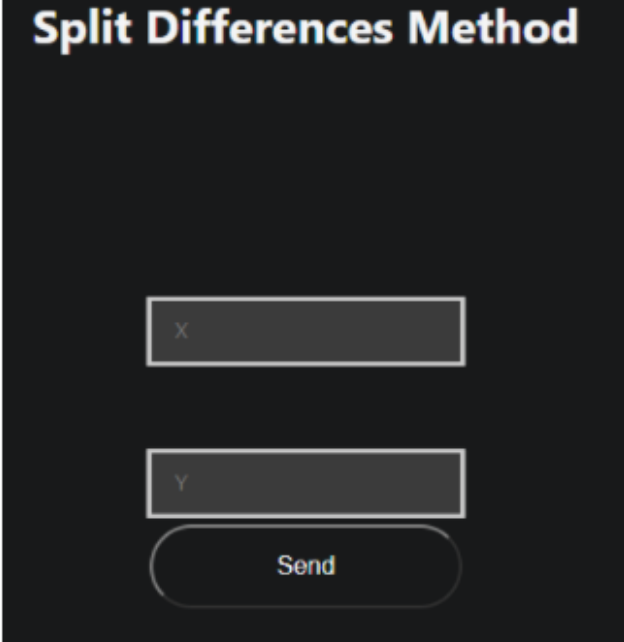
Newton (Split Differences)

November 22, 2021 · One min read

Welcome to help section of Split Differences explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

A screenshot of a web interface titled "Split Differences Method" in white text on a black background. Below the title, there are two input fields: the top one is labeled "X" and the bottom one is labeled "Y", both in white text. Below these fields is a rounded rectangular button labeled "Send" in white text.

- X : x coordinates
- Y : y coordinates

Example

- X : 0,1,2,5
- Y : 2,3,12,147

Express X and Y coordinates as values separated by a comma

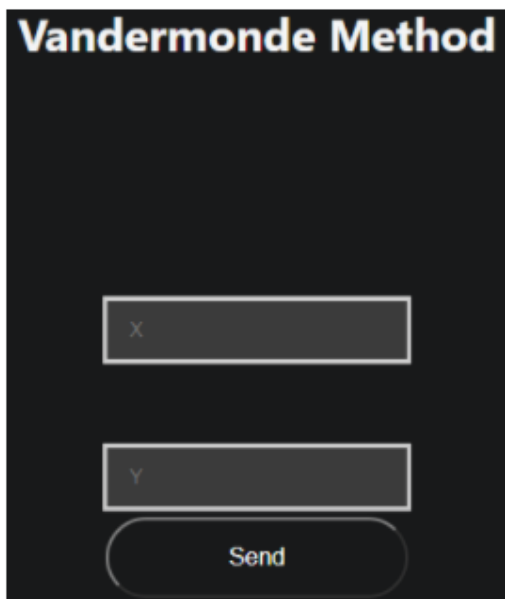
Vandermonde

November 22, 2021 · One min read

Welcome to help section of Vandermonde explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

A screenshot of a web interface titled "Vandermonde Method" in white text on a black background. Below the title, there are two input fields: the top one is labeled "X" and the bottom one is labeled "Y", both in white text. Below these fields is a rounded rectangular button with the word "Send" in white text.

- X : x coordinates
- Y : y coordinates

Example

- X : 0,1,2,5
- Y : 2,3,12,147

Express X and Y coordinates as values separated by a comma

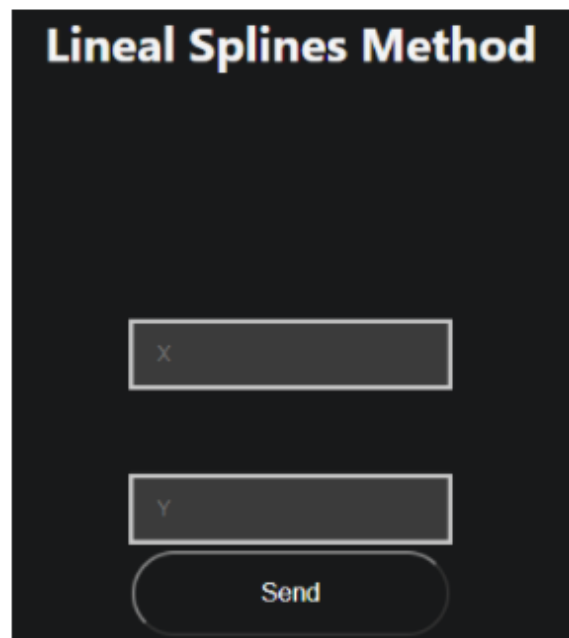
Lineal Splines

November 22, 2021 · One min read

Welcome to help section of Lineal Splines explore how to use this method and what information you need to use it

How to use it

To use this method you need these parameters

A screenshot of a web interface titled "Lineal Splines Method". It features a dark background with two light gray input fields. The first field is labeled "X" and the second is labeled "Y". Below these fields is a rounded rectangular button labeled "Send".

Lineal Splines Method

X

Y

Send

- X : x coordinates
- Y : y coordinates

Example

- X : 0,1,2,5
- Y : 2,3,12,147

Express X and Y coordinates as values separated by a comma

5. TROUBLESHOOTING

In case the result's delivered takes too much time, it is recommended to restart the page or check your internet connection

