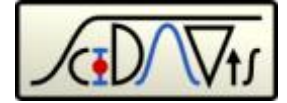




# Física Experimental Básica:



## Tutorial Área SciDAVis

**-Como calcular a área sob uma curva no SciDAVis**

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# Clique em área sobre a linearização do gráfico

SciDAVis - untitled

File Edit View Scripting Graph Tools Analysis Format Windows Help

Results Log

B (y-intercept) = -0,15595 +/- 0,4375  
A (slope) = 4,9988 +/- 0,073428

Chi<sup>2</sup> = 1,3587  
R<sup>2</sup> = 0,99871

[X]	2[Y]
1	9,8
2	14,7
3	19,9
4	25,1
5	30,4
6	34,1
7	39,4
8	45,3

Graph1

Title

Y Axis Title

X Axis Title

Legend: ● Table1\_2, — Linear1\_2

Dataset: Table1\_2  
Function: A\*x+B

Chi<sup>2</sup> = 1,3587  
R<sup>2</sup> = 0,99871  
B = -0,15595 +/- 0,4375  
A = 4,9988 +/- 0,073428

# Clique em “Integrate...”

The screenshot displays the SciDAVis interface. The 'Analysis' menu is open, with 'Integrate ...' highlighted by a red arrow. The 'Results Log' shows the following statistics:

- B (y-intercept) = -0,15595 +/- 0,4375
- A (slope) = 4,9988 +/- 0,073428
- Chi^2 = 1,3587
- R^2 = 0,99871

The 'Table 1' window shows a data table with two columns: X and 2[Y].

X	2[Y]
1	9,8
2	14,7
3	19,9
4	25,1
5	30,4
6	34,1
7	39,4
8	45,3
9	

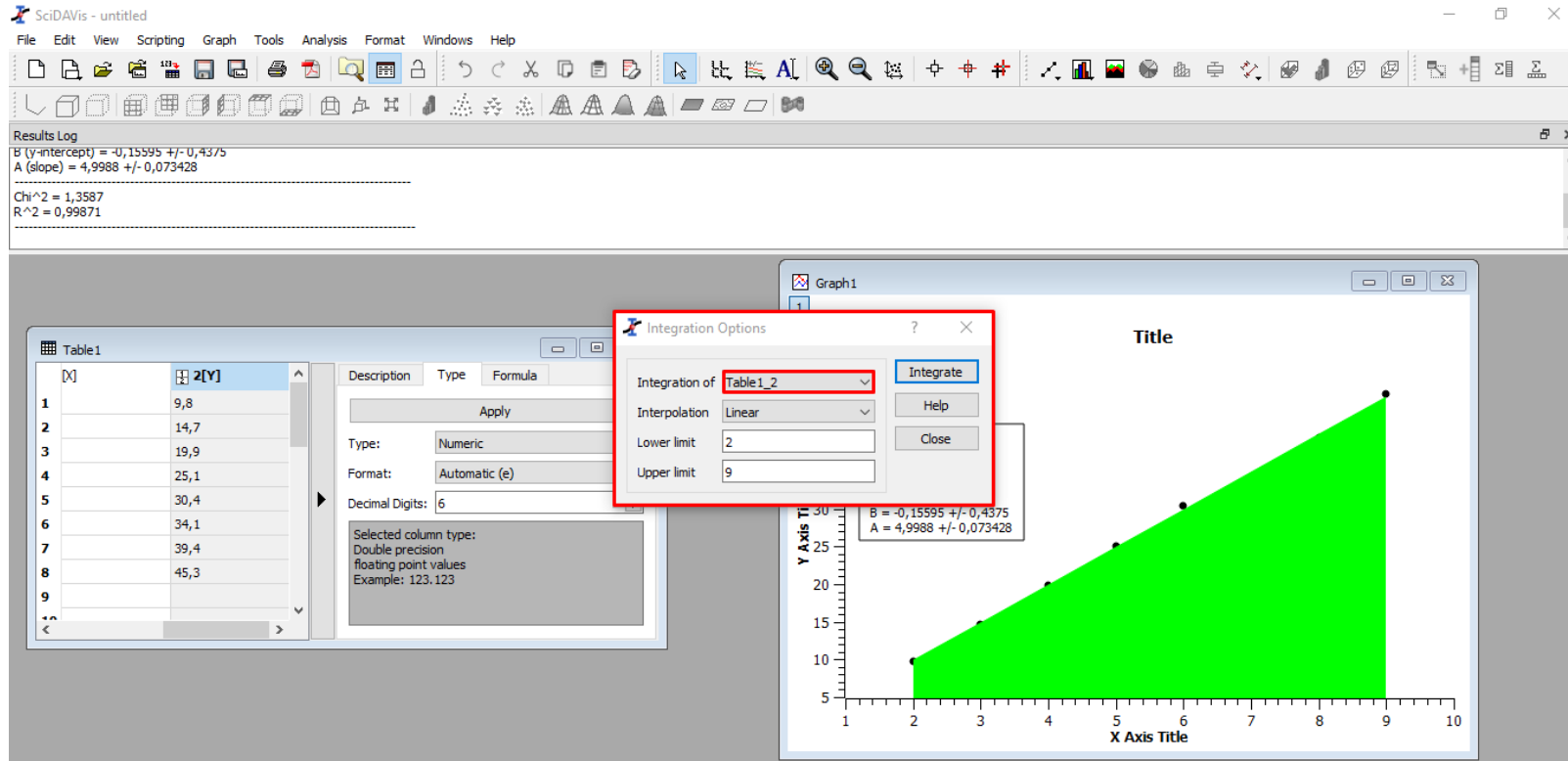
The 'Graph1' window displays a plot titled 'Title' with 'Y Axis Title' and 'X Axis Title' axes. The plot shows a linear fit (Linear\_2) to the data points (Table1\_2). The fit parameters are:

- Chi^2 = 1,3587
- R^2 = 0,99871
- B = -0,15595 +/- 0,4375
- A = 4,9988 +/- 0,073428

The graph shows a linear fit (Linear\_2) to the data points (Table1\_2). The fit parameters are:

- Chi^2 = 1,3587
- R^2 = 0,99871
- B = -0,15595 +/- 0,4375
- A = 4,9988 +/- 0,073428

# Selecione os dados e o intervalo de integração



É possível selecionar os limites inferior e superior de integração.  
Neste caso:  $x = 2$  e  $x = 9$

Ao clicar "Integrate" será gerado o gráfico da função integral e seu valor de área estará no campo de Results Log. Depois é só clicar "Close" para fechar a janela

The screenshot displays the SciDAVis interface. At the top, the menu bar includes File, Edit, View, Scripting, Plot, Analysis, Table, Windows, and Help. Below the menu is a toolbar with various icons. The main window is divided into several panes:

- Results Log:** Shows the output of a numerical integration. The text reads: "Numerical integration of: Linear\_1\_2 using LinearInterpolation", "Points: 8 from x = 2 to x = 9", "Peak at x = 9 y = 44,8333", and "Area=191,362". A red box highlights the area value, with a red arrow pointing to it.
- Table1:** A data table with two columns, X and Y. The X column contains values from 2 to 9, and the Y column contains values from 9,8 to 45,3.
- Integration Options dialog:** A window with the following settings:
  - Integration of: Linear\_1\_2
  - Interpolation: Linear
  - Lower limit: 2
  - Upper limit: 9
  - Decimal Digits: 6
  - Selected column type: Double precision floating point valuesThe "Integrate" button is highlighted with a red box.
- Graph1:** A plot showing the data points (black dots) and a linear fit (red line). The area under the curve is shaded green. The legend indicates: "Table1\_2", "Linear\_1\_2", and "Integration1\_2". The function is given as  $Ax+B$ . The statistics shown are:
  - Chi^2 = 1,3587
  - R^2 = 0,99871
  - B = -0,15595 +/- 0,4375
  - A = 4,9988 +/- 0,073428A red arrow points to the linear fit line.

# Dê um clique duplo no gráfico

SciDAVis - untitled

File Edit View Scripting Graph Tools Analysis Format Windows Help

Results Log

Numerical integration of: Linear\_1\_2 using LinearInterpolation  
Points: 8 from x = 2 to x = 9  
Peak at x = 9 y = 44,8333  
Area=191,362

Table 1

X	Y
1	9,4
2	14
3	19
4	25
5	30
6	34
7	39
8	45
9	

Plot details

Graph1

- Layer1
  - Table1: 1(X),2(Y)
  - Linear1: 1(X),2(Y)
  - Integration1: 1(X),2(Y)

Layer

Background Color [Color Picker] Opacity 255

Canvas Color [Color Picker] Opacity 255

Border Color [Color Picker] Width 0

Margin 0

Antialiasing

Apply to all layers

>> OK Cancel Apply

Example: 123,123

X Axis Title

# Clicando em Linear é possível alterar o estilo da linearização e da área sob a curva, como cores e padrão da área

The screenshot shows the SciDAVis interface with a plot of a curve and its linear fit. The area under the curve is shaded with a red diagonal pattern. A 'Plot details' dialog box is open, showing the 'Line' tab with styling options. A red box highlights the 'Line' tab settings, and a red arrow points to the 'Table1' data source in the 'Layer1' list.

**Table1**

X	Y
1	9,4
2	14
3	19
4	25
5	30
6	34
7	39
8	45
9	

**Plot details**

Graph1

- Layer1
  - Table1: 1(X),2(Y)
  - Linear1: 1(X),2(Y)
  - Integration: 1(X),2(Y)

**Line**

Connect: Lines

Color: [Red]

Line type: Solid

Line width: 1

Cap style: Flat

Join style: Bevel

Fill area under curve:

Fill color: [Red]

Pattern: BDiagonal

Plot type: Line

Buttons: >> Worksheet OK Cancel Apply Plot Associations...

**Title**

X Axis Title

# Clique em "Integration" e aperte "Delete" para excluir o gráfico da função integral

SciDAVis - untitled

File Edit View Scripting Graph Tools Analysis Format Windows Help

Results Log

Numerical integration of: Linear1\_2 using LinearInterpolation  
Points: 8 from x = 2 to x = 9  
Peak at x = 9 y = 44,8333  
Area=191,362

Table1

X	Y
2	0
3	14
4	19
5	25
6	30
7	34
8	39
9	45

Plot details

Graph1

- Layer1
  - Table1: 1(X),2(Y)
  - Linear1: 1(X),2(Y)
  - Integration1: 1(X),2(Y)

Line

Connect: Lines

Color: [Red]

Line type: Solid

Line width: 1

Cap style: Square

Join style: Bevel

Fill area under curve:

Fill color: [Red]

Pattern: BDiagonal

Plot type: Line

Worksheet OK Cancel Apply Plot Associations...

Title

X Axis Title



# Clique em “OK” para salvar

The image shows the SciDAVis software interface. At the top, the title bar reads "SciDAVis - untitled". The menu bar includes File, Edit, View, Scripting, Graph, Tools, Analysis, Format, Windows, and Help. Below the menu bar is a toolbar with various icons for file operations, editing, and plotting. A "Results Log" window is open, displaying the following text:

```
Numerical integration of: Linear1_2 using LinearInterpolation
Points: 8 from x = 2 to x = 9
Peak at x = 9 y = 44,8333
Area=191,362
```

The main workspace contains a "Table 1" window with a grid of data points. A "Plot details" dialog box is open, showing the "Line" tab. The dialog box has a tree view on the left with "Graph 1" expanded to show "Layer 1" containing "Table 1: 1(X),2(Y)" and "Linear 1: 1(X),2(Y)". The "Line" tab settings include:

- Connect: Lines
- Color: Red
- Line type: Solid
- Line width: 1
- Cap style: Flat
- Join style: Bevel
- Fill area under curve:  (checked)
- Fill color: Red
- Pattern: BDiagonal

At the bottom of the dialog box, the "OK" button is highlighted with a red arrow. Other buttons include "Worksheet", "Cancel", "Apply", and "Plot Associations...". The background shows a plot window with a red line connecting eight data points, and the area under the curve is filled with red diagonal lines. The x-axis is labeled "X Axis Title" and ranges from 1 to 10. The y-axis ranges from 5 to 10.

# Clique duas vezes na caixa de informações do gráfico para editar o texto e adicionar o valor da Área do Result Log. Depois, clique em “OK”

The screenshot shows the SciDAVis interface. In the background, a graph titled "Title" displays a linear regression fit on a dataset. The graph's X-axis is labeled "X Axis Title" and ranges from 1 to 10. The Y-axis ranges from 5 to 10. A red shaded area under the regression line is visible. A text box is overlaid on the graph, containing the following information:

- Dataset: Table1\_2
- Function: A\*x+B
- Chi^2 = 1,3587
- R^2 = 0,99871
- B = -0,15595 +/- 0,4375
- A = 4,9988 +/- 0,073428
- Area = 191,362

In the foreground, a "Text options" dialog box is open, allowing for editing of the text box's appearance. The dialog includes options for Text Color, Font, Frame (set to Rectangle), Opacity (set to Transparent), and Background color. The "Area = 191,362" value is highlighted in red in both the text box and the Results Log window.

The Results Log window shows the following text:

```
Numerical integration of: Linear_1_2 using LinearInterpolation
Points: 8 from x = 2 to x = 9
Peak at x = 9, y = 44,8333
Area=191,362
```

X	2[Y]
1	9,8
2	14,7
3	19,9
4	25,1
5	30,4
6	34,1
7	39,4
8	45,3
9	

# Gráfico finalizado, para salvar siga o mesmo procedimento de outros Tutoriais.

