TI-Nspire™ Software Script

Differential equations (Tutorial B7)

[00:00:00.00]
To graph differential equations, I'll start by clicking
on Insert, and then I'll choose Graphs to insert the Graphs

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application into a new page. Next, in the Document Tools,
I'll click Graph Type, and then choose "Diff Eq" for Differential

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Equation. We'll start by graphing a first order differential
equation. In the entry line, I'll type –y1+x. Next we'll

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enter our initial condition. I'll press the Tab key twice
to highlight the field below the entry line, and then enter 0,

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press the Tab key again, and enter 1. Then we can press
Enter, to see the plot. We can now make changes to the

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parameters if we want to. To do this, I'll click the double
arrow on the left side to show the entry line. Next, I'll

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press the up arrow key, to see the y1 equation. Then I'll
click the Edit Parameters button on the right side. This

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brings up the parameters dialog box. I'll choose to change
the solution method by clicking on the menu and choosing

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Runge Kutta. We'll then click "ok" to close the dialog
box, and we can view the changes to the plot. We can also

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add an initial condition. I'll click the Add Initial Condition
button at the bottom. In the dialog box, we can add initial

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conditions, or edit our existing ones. I'll edit the initial
condition by pressing the Tab key to highlight "1" and

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typing in 2 instead. Then we can click "ok" to close the
dialog box, and view the changes to the plot. Next we'll

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graph a second order differential equation. To do this,
I'll first need to create a new problem by clicking Insert, and

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then choosing Problem. I'll then choose add Graphs to my
new problem. In the Document Tools, I'll click Graph Type,

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and then Diff Eq. I'll type my equation into the entry
line, –y2. Next we'll enter our initial condition. Press

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the Tab key twice to highlight the field just below the
entry line, and enter 0, press the Tab key again, and enter 1.

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I'll then press the down arrow key to move to y2. I'll
define this based on y1, so I'll enter y1. Below the entry

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line, you can see that my initial condition is automatically
inserted based on Y1. Next we'll press the Tab key twice,

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and enter 0. We'll then press Enter to plot the equation.
Let's edit the parameters for this equation. I'll click

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the double arrow on the left side to show the entry line.
The entry line is ready for our next equation, so I'll

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press the up arrow key to see the y2 equation. Then I'll
click the Edit Parameters button on the right side to

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open the dialog box. I'll click on the Field menu, and choose direction. Then I'll click "ok" to close the dialog

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box. We can now view the updated plot.

[00:04:10.00]