

Creating a regression equation (Tutorial C3)

http://www.atomiclearning.com/k12/en/movie/86413/play_window?type=Tutorial&sid=2421

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To create a regression equation based on lists of data, first insert the Lists & Spreadsheet application into a

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new page by clicking Insert and then choosing Lists & Spreadsheet. Next, enter your list of coordinates. To do this, I'll

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click on the white space just to the right of the letter A at the top of column A, and I'll type "x" "c" "o" "o" "r" "d"

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and then press Enter. This defines any values I enter into column A as a list linked directly to the variable

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called "xcoord," which includes the x-coordinate values. Note that if you just watched the previous movie and entered

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the data along with that tutorial, the data auto-populates in your new Lists & Spreadsheet column. Now, I'll name

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column B "ycoord" using this same technique, first by clicking the white space to the right of the letter B, and then

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typing "y" "c" "o" "o" "r" "d," followed by the Enter key. I have a series of coordinates to enter. I'll enter the

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x coordinates in column A, and the y coordinates in column B. Remember that you can pause this movie at any time while

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you enter your data. Let's start with the x coordinates, pressing "Enter" after you type each number. I'll manually

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enter in 0.5, 1.5, 2, 6, 8, 15, 19, and 45 into column A. Next, I'll go up to cell B1 and enter "0". Notice that

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the y-coordinates increase by 10 every time. To save myself from typing, I'll express each coordinate as a function

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of the coordinate preceding it. To do this, in cell B2 I'll type "=" and then type "b1," followed by "+10". The

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full cell formula now reads "=b1+10". Now, I'll click Data in the Document Tools, and select the Fill command. I'll

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just use the down arrow key to highlight the cells through cell B8 and then press "Enter." Notice that the values

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have been populated all the way through 70. I'll press the left arrow to deselect the filled down data. Now that

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I've entered my data, I'm going to calculate the quadratic regression for it. To do this, I'll click on Statistics

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in the Document Tools. Now I'll roll over the Stat Calculations submenu, and I'll choose "Quadratic Regression." For

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"X List", I'll click the "X List" drop down menu, and I'll choose "xcoord", which is what I named column A. Next, I'll

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click the "Y List" drop down menu, and I'll choose "ycoord" which is what I named column B. Now, I'll click the

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"1st Result Column" at the bottom of the dialog box; this is where the data will be entered. The default location is

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the next column over, which in this case is column B. I'll click again in the field, and place the insertion point

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just to the right of where it currently has the letter "b," and then I'll press Backspace on the keyboard. Now,

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I'll type "c," so that the first column of my answer is column C instead, and then I'll click the OK button to

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show my regression equation. Note that there is now new information in columns C and D. I'll resize the columns

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appropriately by clicking on the divider between them and dragging so I can read the information in both. Column C

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shows me the standard quadratic expression variables in the expression ax^2+bx+c . Then, in column D, it shows

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me the values for a, b, and c in that quadratic expression that best fits my data, as well as the coefficient of determination

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and other regression information.

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