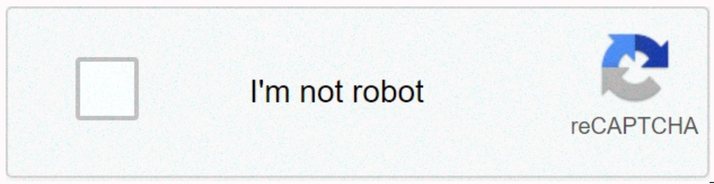

Continue

Tables in mathcad 15

To insert table 1. On a worksheet, click where you want to place the table. 2. On the Arrays/Tables tab, in the Arrays and Tables group, click Insert Table, and then drag to select the size of the table that you want. 3. Select the number of items to define the number of datasets and the size of the longest dataset. The maximum size of a table that can be inserted from the ribbon is 10 rows per 10 columns. To insert additional rows or columns, press Shift+Enter to add a new row, or Shift+Space to add a new column. The method described in the article you are referring to is certainly not the favorite in MC 15 and below. In Mathcad and also in Prime, you can use syntax such as x:=stack(1,3,5,-1,2.45) to create a vector with few values. In Prime, entering a vector and changing its size during editing has been made much easier and more convenient than it used to be, and you can do so as Fred suggested by pressing CTRL-M and entering values, followed by Shift-Enter or Tab to move on to the next line. If you want to create an array, press Shift-Space to create a new column. Deleting columns and rows is also pretty intuitive and simple, and can also be done using the appropriate actions from the menu ribbon. PTC has been implemented much worse than it used to be is scrolling into a larger array. It's amazing that someone at PTC could have found the way it's implemented in Prime now and really thought it might be a good idea! For entering more data, perhaps copying data from a spreadsheet or data logger output txt, Mathcad provides data tables with insert-data-table. Unfortunately, this convenient feature of saving large data within a worksheet without taking up much space, without having to read the data every time it starts, and without having to embed an Excel component is missing in Prime. RandomAxe (Mechanic) (OP) May 7, 18 at 1:31 PM I entered my datasets using 'Insert Table' in mathcad prime. All variables have 12 different values (its annual data, so each variable has 12 values) that I entered as a table with 12 rows and 1 column and defined the units as applicable. I'm doing various calculations with this data and the results are then output as a table in the same format (12 rows 1 column) but doesn't each row seem to use the corresponding row data in the input variables? For example, I'm calculating the reynolds number and I have input data for velocity, density and viscosity as a table with 12 different values and then defined the tube as a standard variable (which does not change). So I defined the formula for the Reynolds number. The results are output as a table, but the top result (row 1) is not calculated based on the corresponding row 1 for speed, density, and viscosity. I can't find any information in matncad help files about using tables, what would be the correct way to do it Aren't tables meant to be used this way? Thank you for helping keep Eng-Tips forums free from inappropriate posts. Eng-Tips staff will check this and take appropriate measures. Page 2 eBook - Functional prototyping using functional metal 3D printing prototypes are a fundamental step in product development, offering engineers the opportunity to test new ideas and projects, also revealing how the product will live up to use in the real world. And when it comes to functional prototypes, 3D printing is rewriting the rules of ™ possible. Download Now Case Study - Eaton Corporation: Fast Tools and MRO parts for an automotive supplier The company turned to the study system to enable faster retooling on production lines, accelerate the development and prototyping of custom parts, and quickly and cost-effectively produce maintenance, repair, and operations (MRO) parts to keep production lines running. Download now eBook - John Zink Hamworthy: Printing Complex Burner Tips and On-Demand Shop Floor Tools The Metal Studio System desktop allows John Zink Hamworthy Combustion engineers to quickly prototype, design and test innovative new part designs and simplify their workflows. Download this ebook to learn about the parts John Zink printed on Studio System and more. Download now white paper - Training sheets with 3D printed molds In this white paper, learn the step-by-step method to form sheet metal parts with 3D printed plastic molds to reduce costs and production time. Sheet metal forming is today the most convenient forming procedure for the manufacture of parts in large quantities. Download Now There are many ways to use Excel integration in Mathcad to your advantage. Here is one of my favorite use cases with mathematical software and tips to set it up. The Challenge Say I have a worksheet that performs some basic engineering calculations such as reactions, shear and moment, as well as deflection of a simply supported beam subjected to a force. The cross-section of the

beam can be seen in the image below: Cross-section of a beam shown in mathcad software. If I were to manually update this worksheet to the size of another cross-section, I would have to type in some numbers, which takes time. However, I already have a number database in Excel format. Why not just take advantage of the work already done and save as much time as possible? Using values already in Excel This is where Mathcad-Excel integration comes into play. Once set, I will be able to type a single ID value into the worksheet. Since it is related values in Excel, will automatically update the rest. There are a few ways to get data from the spreadsheet to PTC Mathcad, but in this example we'll go with the Excel component approach because I want my data to be displayed in a nice table. Start at from an excel component. Follow these steps: On a Mathcad PTC worksheet, click where you want to insert an Excel component. On the Input/Output tab, in the Data Import/Export group, in the Excel Component list, click Insert Excel Component. Add or remove spaces in the Input and Output areas as in a Mathcad PTC worksheet. The table looks like this: worksheet showing excel component in math software Connecting values Now comes the interesting part. You must link the values in the table to the variables on the worksheet so that it automatically updates the variables with the values corresponding to that ID. To connect values, follow these steps: At the bottom of the Excel component, expand the output area. Insert relationships by right-clicking the area and selecting Insert Output Expression. You will need to insert an output expression for each column in the table. Be sure to specify the range of values that you want to extract from the table and assign it to a variable. It should look like this: assign value ranges to a variable After you define relationships, hide them by compressing the output area. At this point, if you evaluate one of the variables defined in it, you will dare a value vector. The thing is, we want the individual values that match the ID, not the values for all of them. This brings us to our next and last step. Using the match function Using the match function, make sure that the ID variable (marked yellow) entered manually on the worksheet is in the IDe vector extracted from the Excel component. This stores the location of the ID in the idx variable. We then use the same idx variable to get the values in the same location as the ID from the he, be, if, you, de, and re vectors. Return values are assigned to variables used on the Mathcad worksheet. Mathcad Does the rest At this point, all you have to do is enter the beam ID for which you want to perform calculations and watch mathcad update. Come on, try it. Want to know more about using Mathcad? Check out this pre-recorded webinar for more information about design intent documentation, analysis-based project creation, and more. Les Chatfield foreground image structure via Flickr tag: When you enter a table of numbers, you actually assign items to a vector. This section shows you how to perform this procedure by using input tables and range variables. To enter an input table, enter a definition with variable subscripts on one side and a sequence of comma-separated values on the other. For example: • To define i to run through four values, type i: 1; 4. Note that I only have to take integer values. Otherwise, it cannot be used as a subscript in the next step. Entering a number table1 • Click in a new place and type [i: The placeholder indicates that Mathcad has a value for xl' Enter a table of numbers 2 • Type 3 and press the comma key. Mathcad shows another placeholder to indicate that Mathcad now expects a value for x2 by entering a table of numbers 3 • Type 5, 15.20 to provide values for . x2′ x3′ and x4 Enter a table of numbers 4. After you create an input table, you can do one of the following: • Insert a value in the center of a table. Click on the value immediately above where you want to enter the new value. Then type a comma. Below the value selected in the table, Mathcad creates a placeholder surrounded by a box. To enter another number, you must type it in this placeholder. • Extend the table to contain additional values. Click the last value in the table and follow the previous steps to insert a value into the table. • Replace or delete a value from the table. Place the value that you want to replace or delete between the two edit lines, and on the Edit menu, click Cut. Mathcad places the value with an empty placeholder. Type a new value in this placeholder to replace the previous one. To completely delete the value and reduce the length of the array by one in the process, backspace on the placeholder. Some notes on input tables: • Each value in an input table must be a number or expression that returns a number, the name of an array, or an expression that returns an array. Expressions involving range variables and expressions created using the Array command on the Insert menu are not allowed. • All expressions in an input table must have the same climens, if any. For example, if you want each expression to be in meters, you might need to include the abbreviation per meter in each entry in the table. A shortcut is to enter numbers without units and redefine the vector with units by typing something like x :=X· m/sec2 . • An input table usually has an entry for each value of the range variable used to define it. If the table contains too few entries, Mathcad will define only all the values present. If the table contains too many entries, the additional entries will be ignored. • Input tables assign values only to the elements specified by the range variable. If in the previous example, the definition of the range variable was := 10.20 .. 40, Mathcad would assign values to x 10 ' x20′ x30 and x40 . Mathcad would then buffer the unassigned entries, i.e. Xo to x9′ xl1 up to x19' and so on, with zeros. You will see these zeros if you play the vector by typing x. You can inadvertently create large tables this way. • Tables inputs are limited to 50 elements. If you want to enter more than 50 items, enter them using multiple tables. For example, you could define j 1 from 1 to 50 and j2 from 51 to 100, type x [j 1: followed by first fifty numbers, then type x [j 2 : gutted by the second fifty numbers. • Faced with a very large number of data values, consider reading them from a data file stored on disk as an alternative to typing with input tables. Chapter 19, Data Management, explains this in more detail. Figure 11-5 shows some input tables. Note how typing x= and y= displays the elements of x and y in vector form. Mathcad ignores the last number in the input table for y because this entry would have index 5 and the range variable i stops at 4. Compare that to typing x [i= as shown in Figure 11-3. Input cards. Note that the first element of both vectors is zero. This is because the source of the Mathcad array is set to zero by default. Because the range variable i starts at 1, the zeroth element is never explicitly defined. In the absence of an explicit definition, Mathcad assumes a value of zero. Zero.

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