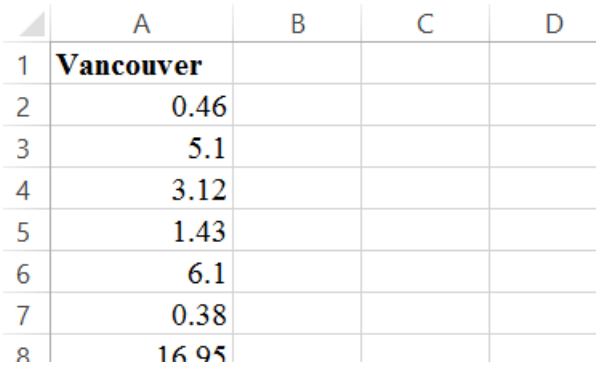
Create a Dot Plot

Excel Step-by-Step How-to for Windows

Excel for Mac Instructions on page 11

Instructions: Use this guide to create a dot plot using Excel.

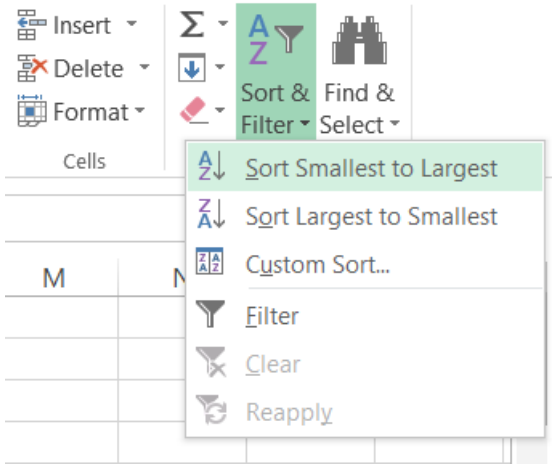
Data requirement: one variable, quantitative data
Sample Data: yearly snowfall in Vancouver

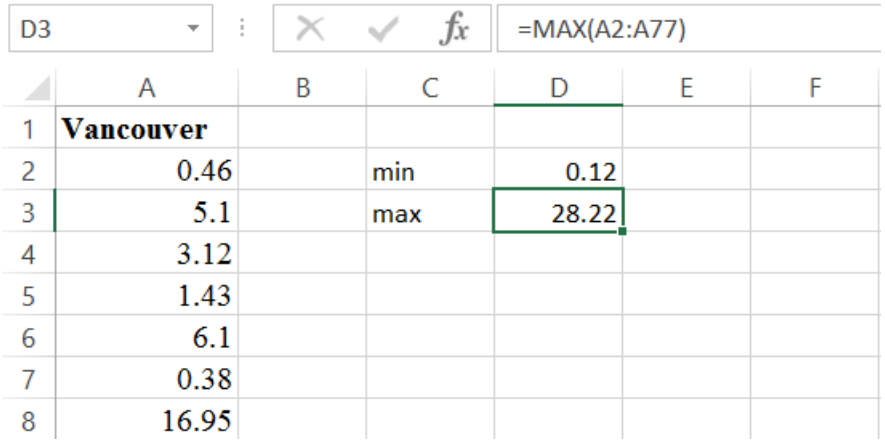
Step	Windows Instructions + Screen Shot
1. Arrange the data you want to use into a column. If you have multiple variables, ensure that each column is a unique variable.	

2. Determine the minimum and maximum values of your data set.

If you have a large data set, you may want to use Excel to find the smallest and largest point in your data. These values make it easier to determine the starting and ending values for your bins.

Select the column with your data in it and then use the “Sort” button. Another method you can use is to type =MIN(A:B) (where A and B are the first and last cell in your column of data) into a blank cell in a new column to find the smallest number and then type =MAX(A:B) to get the biggest number.



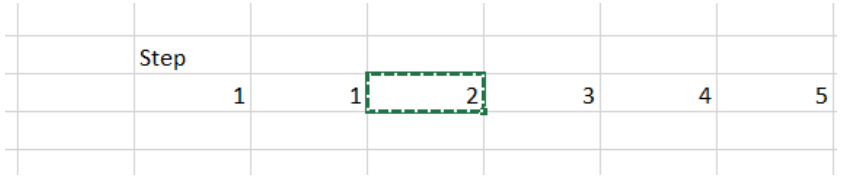


3. Based on the minimum and maximum values, choose an appropriate bin size for your dot plot.

A bin is the interval by which you want to represent your data. A dot plot displays a dot or symbol for every value in your data set that falls into a given bin. It is important to choose a size that is not too small or too large. You want the bin to be wide enough to show a pattern of distribution.

In a cell to the right of your data set, enter your bin size.

4. Set up your range of bins by typing each bin number into a column.



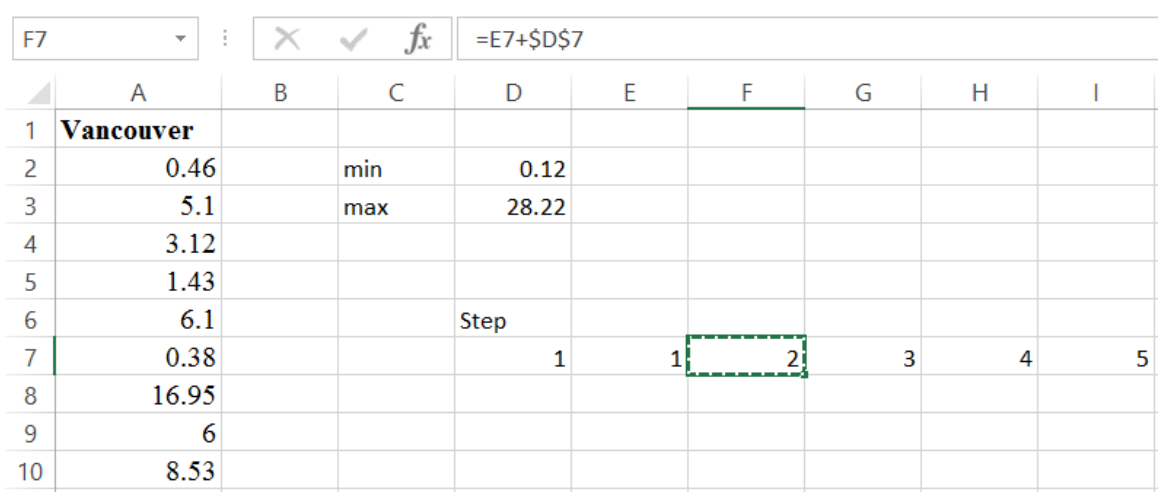
TIP: To quickly auto fill your bin values:

Rather than typing every individual number in your range you can automate the process by using Excel expressions.

In an empty cell type your bin size. In this case, the bin size is 1. In the cell beside the bin size you should use the =INT() function on the cell that holds your minimum data set value. Then add the bin size.

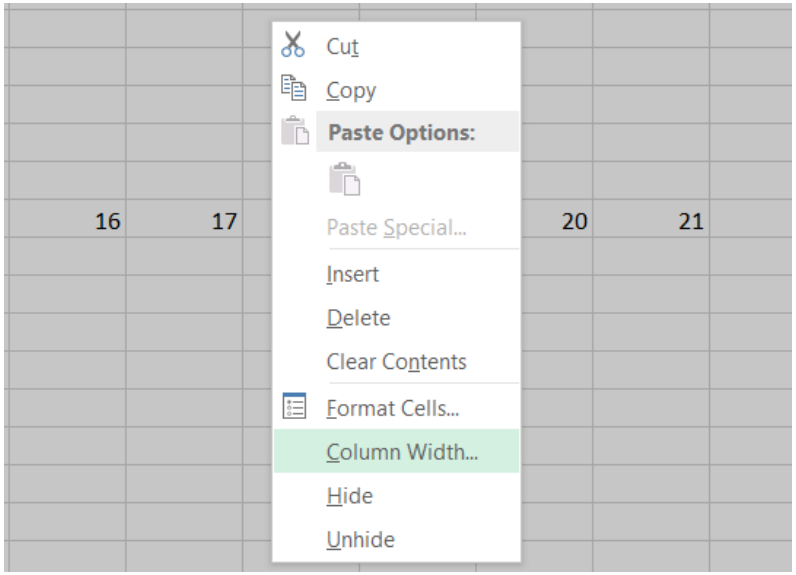
You can repetitively add the bin size to the previous cell by typing = in the blank cell to the right and then selecting the most recently populated cell, typing +, and selecting the cell with the bin size stored. Lock the cell (put $ before the letter and number or press F4) that has the bin size value stored in it and copy and paste this expression to the right until you have as many cells as it takes to reach the max value of your data set.

Another benefit of using this method is that you can dynamically change your bin size by changing the value in your “step” cell.



5. Resize columns to an appropriate width.

Select all of the columns and right click to select resize column. For a dot plot you will only need your column to be as wide as the number stored in it.

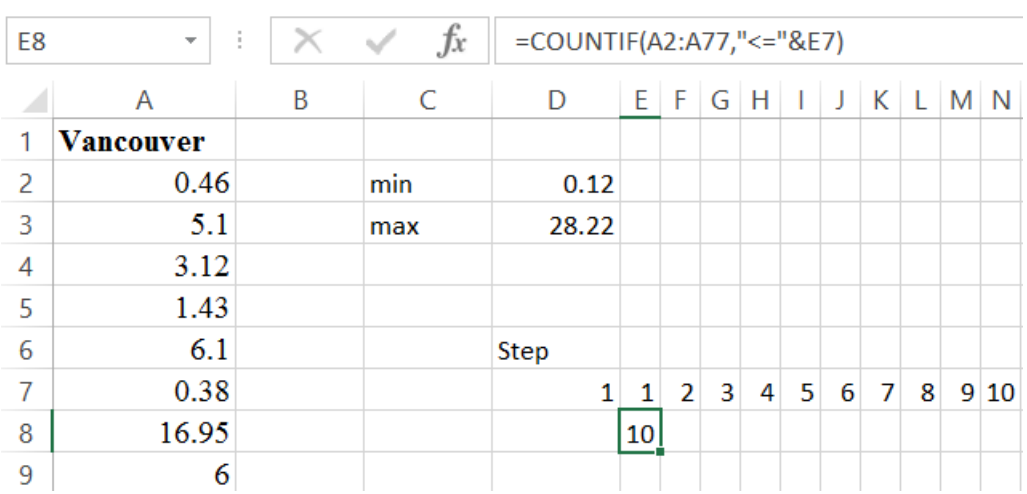


6. Fill in the frequency of the data that falls into each bin.

Select the cell below your first bin. Type =COUNTIF().

=COUNTIF(range, criteria)

- **Range**: all the values of your data set
- **Criteria**: "<="&*firstbinnumber* (this criteria sub-formula indicates that you want to count all the numbers that are less than or equal to your first bin range number. In this example, the completed formula would look like this:



So in this example there are 10 items in the data that are less than or equal to 1.

7. Calculate the difference between the output for each bin and re-assign that value to the cell.

Because you do not want the values that fall in the less than 1 category to also fall under the between 1 and 2 category, you have to calculate the difference between each bin value. Lock the data range by selecting those numbers in the expression and hitting F4 so that our expression references the right cells no matter where we copy and paste the formula. Next you subtract the sum of all of the previous bin values from your count. You can do this by typing =SUM().

=SUM(number1, $number2)

- **number1**: the most recently populated cell in your bin set.
- **$number2**: the locked first output you calculated.

This will give us the number of items in our data that fall exclusively into that given bin.

F8 | =COUNTIF($A2:$A77,"<="&F7)-SUM(E8:E8)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	**Vancouver**																		
2	0.46		min	0.12															
3	5.1		max	28.22															
4	3.12																		
5	1.43																		
6	6.1			Step															
7	0.38			1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
8	16.95				10	6													
9	6																		

8. Display a symbol or dot for the total in each bin.

In the cell above the first bin type =REPT().
=REPT(text, num_times)

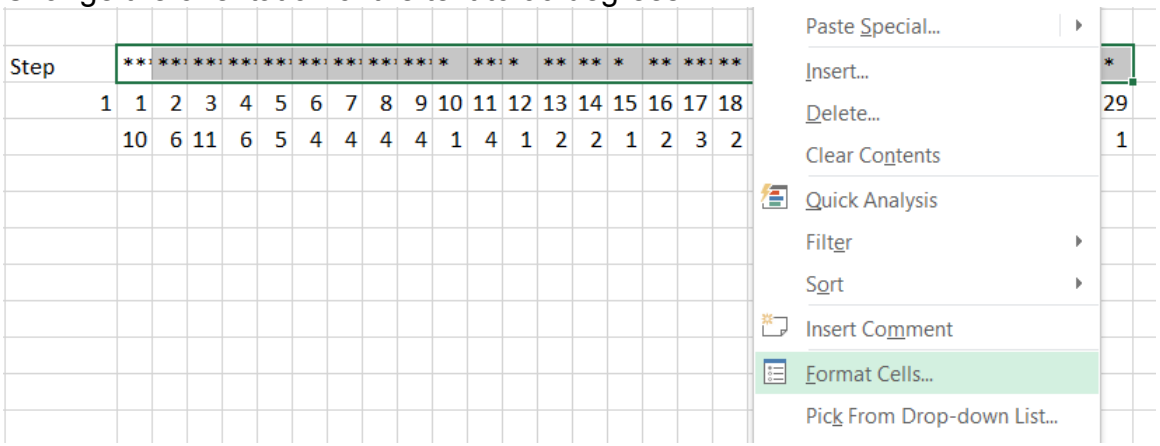
- **text**: the symbol we would like to repeat for the dot plot
- **num_times**: the number of times the text will repeat. For the dot plot you should select the cell that holds the numbers of items from your data set that fit into that bin.

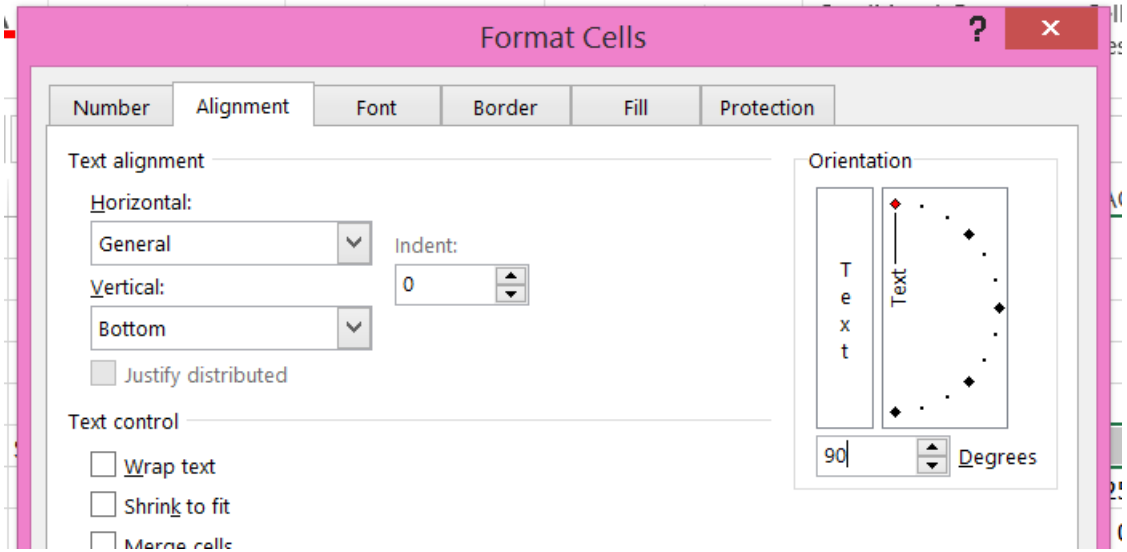
=REPT("*",E8)

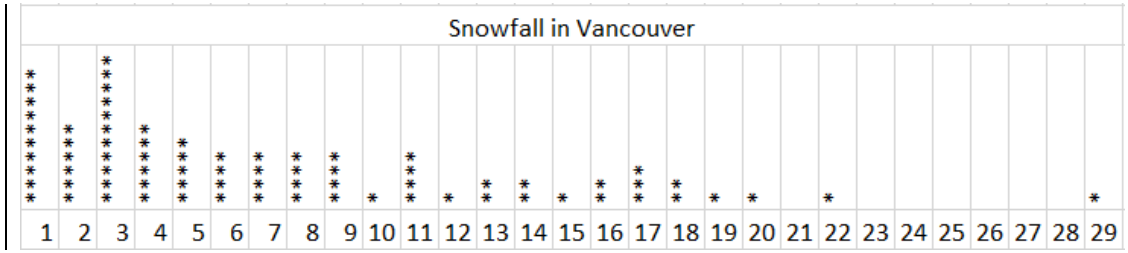
	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
		min	0.12															
		max	28.22															
			Step	**********														
			1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
				10	6	11	6	5	4	4	4	4	1	4	1	2	2	1

9. Format dot plot.

Align the text of the dots to be vertical by selecting format cell and adjusting the alignment. Change the orientation of the text to 90 degrees.







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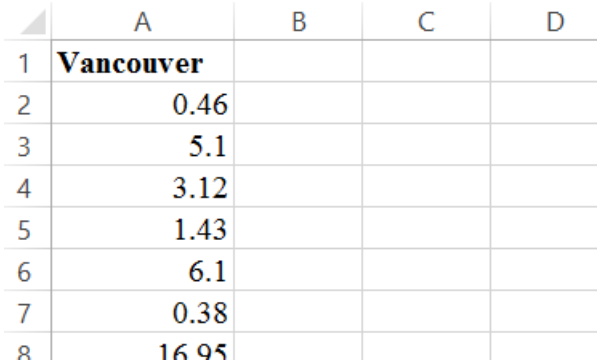
1. Arrange the data you want to use into a column. If you have multiple variables, ensure that each column is a unique variable.	

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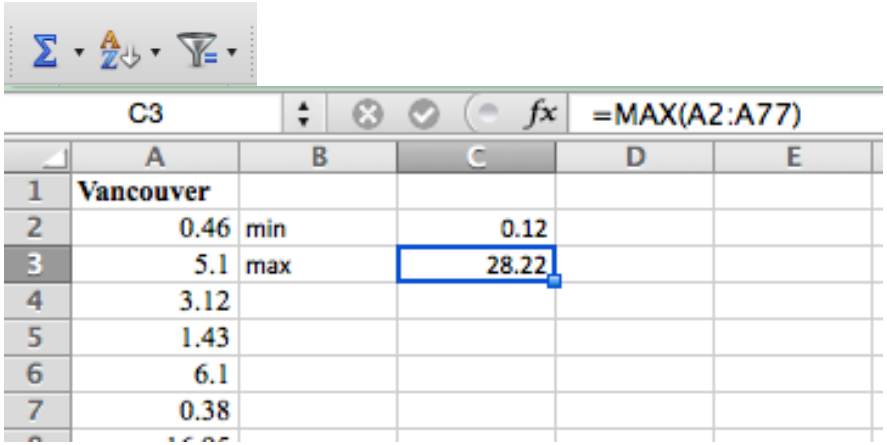

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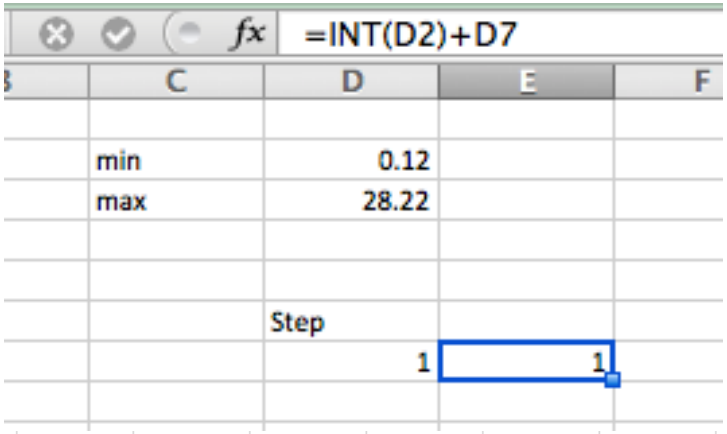

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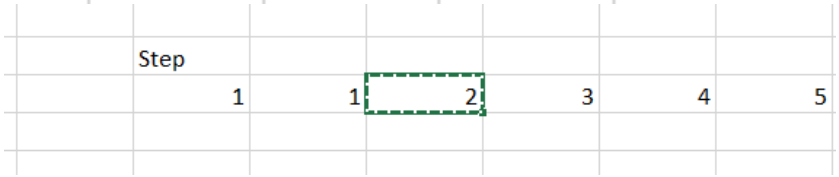

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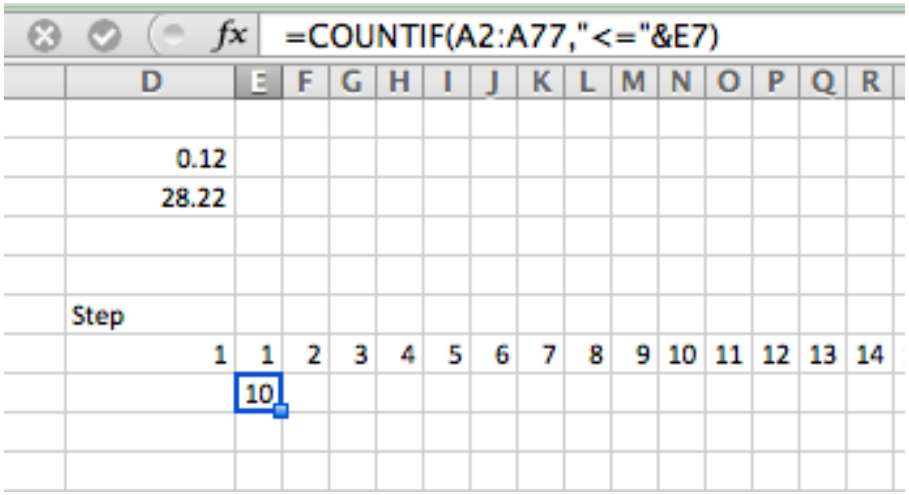

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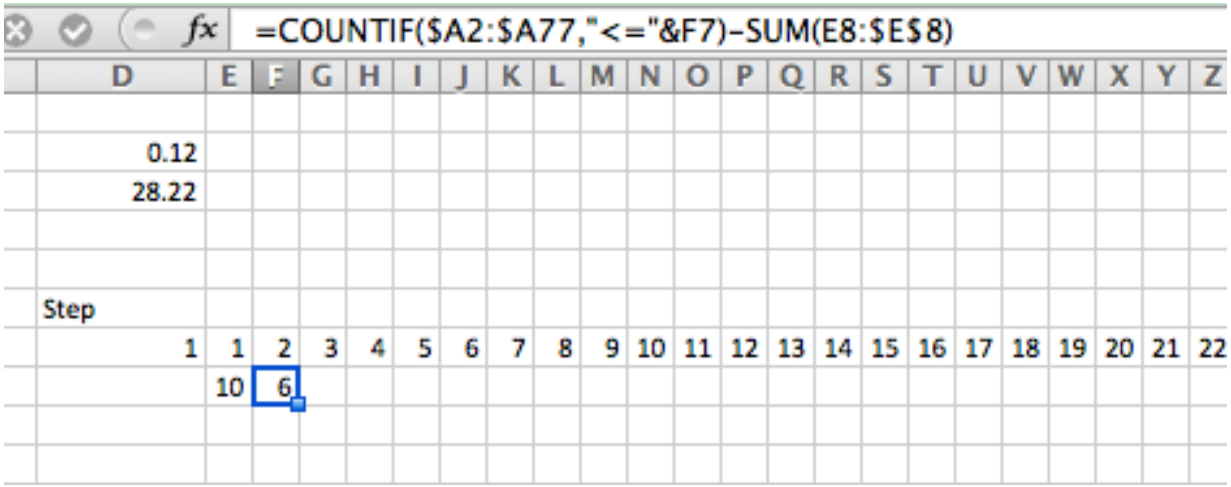

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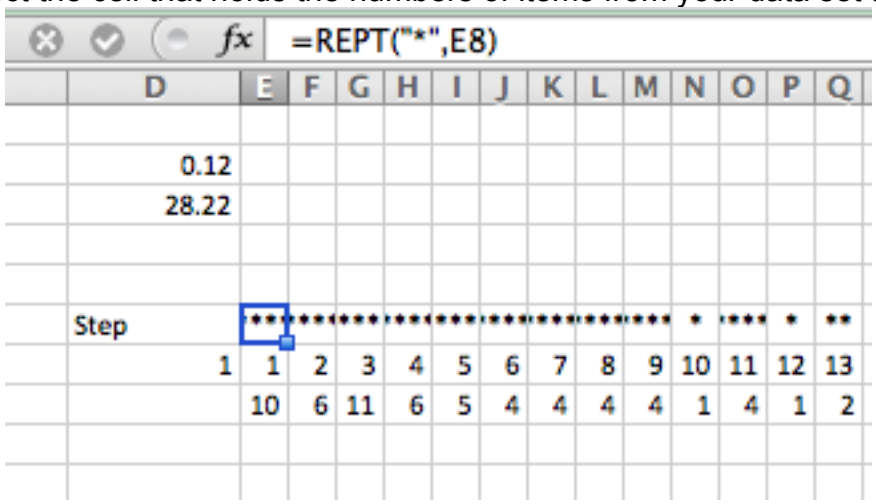

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