

How to Create a Bell Curve (Normal Distribution) in Excel with Example and Template

Authored by
stats writer

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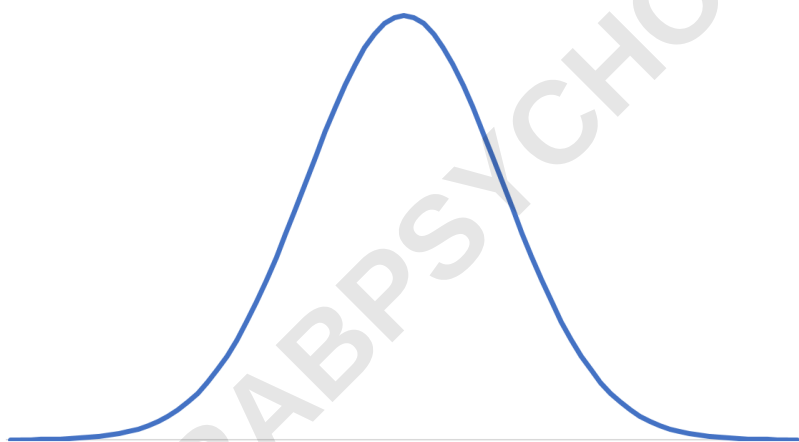
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Creating a Bell Curve in Excel is a simple and effective way to visualize data distribution. This can be done by plotting a normal distribution curve over a histogram of the data. To begin, select the data set you want to graph and insert a histogram chart. Then, add a normal distribution curve by selecting the chart and going to the "Design" tab, clicking "Add Chart Element" and choosing "Trendline" and then "More Trendline Options." In the "Format Trendline" window, select "Normal Distribution" as the trendline type. This will create a bell curve over the histogram, representing the data's distribution. A template for creating a Bell Curve in Excel can be found online, or by using the above steps to create a basic template. This can be customized to fit your specific data and design needs.

Make a Bell Curve in Excel: Example + Template

A "bell curve" is the nickname given to the shape of a normal distribution, which has a distinct "bell" shape:



This tutorial explains how to make a bell curve in Excel for a given mean and standard deviation and even provides a free downloadable template that you can use to make your own bell curve in Excel.

Example: Bell Curve in Excel

Use the following steps to make a bell curve in Excel.

Step 1: Create cells for the mean and standard deviation.

	A	B	C	D	E	F
1	Mean	0				
2	Std. Dev	1				
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						

Step 2: Create cells for percentiles from -4 to 4, in increments of 0.1.

	A	B	C	D	E	F
1	Mean	0				
2	Std. Dev	1				
3						
4	percentiles					
5	-4					
6	-3.9					
7	-3.8					
8	-3.7					
9	-3.6					
10	-3.5					
11	-3.4					
12	-3.3					
13	-3.2					
14	-3.1					
15	-3					
16	-2.9					
17	-2.8					
18	-2.7					
19	-2.6					
20	-2.5					
21	-2.4					
22	-2.3					
23	-2.2					

...

	A	B	C	D	E	F
64	1.9					
65	2					
66	2.1					
67	2.2					
68	2.3					
69	2.4					
70	2.5					
71	2.6					
72	2.7					
73	2.8					
74	2.9					
75	3					
76	3.1					
77	3.2					
78	3.3					
79	3.4					
80	3.5					
81	3.6					
82	3.7					
83	3.8					
84	3.9					
85	4					
86						
87						
88						

Step 3: Create a column of data values to be used in the graph.

	A	B	C	D	E	F
1	Mean	0				
2	Std. Dev	1				
3						
4	percentiles	data				
5	-4	-4	=A5*\$B\$2+\$B\$1			
6	-3.9	-3.9				
7	-3.8	-3.8				
8	-3.7	-3.7				
9	-3.6	-3.6				
10	-3.5	-3.5				
11	-3.4	-3.4				
12	-3.3	-3.3				
13	-3.2	-3.2				
14	-3.1	-3.1				
15	-3	-3				
16	-2.9	-2.9				
17	-2.8	-2.8				
18	-2.7	-2.7				
19	-2.6	-2.6				
20	-2.5	-2.5				

Step 4: Find the values for the normal distribution pdf.

	A	B	C	D	E	F	G
1	Mean	0					
2	Std. Dev	1					
3							
4	percentiles	data	pdf				
5	-4	-4	0.000134	=NORM.DIST(B5, \$B\$1, \$B\$2, FALSE)			
6	-3.9	-3.9	0.000199				
7	-3.8	-3.8	0.000292				
8	-3.7	-3.7	0.000425				
9	-3.6	-3.6	0.000612				
10	-3.5	-3.5	0.000873				
11	-3.4	-3.4	0.001232				
12	-3.3	-3.3	0.001723				
13	-3.2	-3.2	0.002384				
14	-3.1	-3.1	0.003267				
15	-3	-3	0.004432				
16	-2.9	-2.9	0.005953				
17	-2.8	-2.8	0.007915				
18	-2.7	-2.7	0.010421				
19	-2.6	-2.6	0.013583				
20	-2.5	-2.5	0.017528				
21	-2.4	-2.4	0.022395				
22	-2.3	-2.3	0.028327				
23	-2.2	-2.2	0.035475				
24	-2.1	-2.1	0.043984				

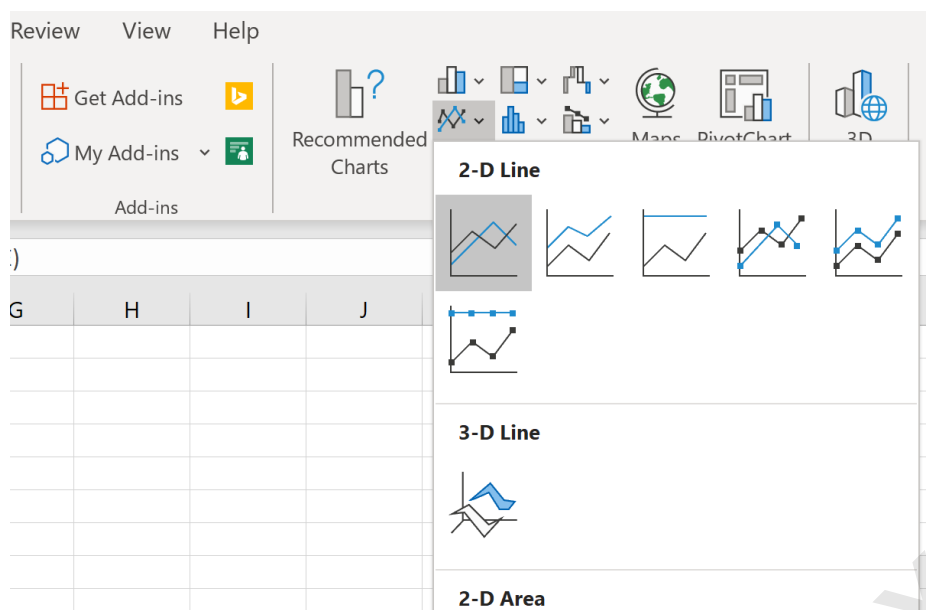
Step 5: Create x-axis plot labels for only the integer percentiles.

	A	B	C	D	E	F
1	Mean	0				
2	Std. Dev	1				
3						
4	percentiles	data	pdf	labels		
5	-4	-4	0.000134	-4	=B5	
6	-3.9	-3.9	0.000199			
7	-3.8	-3.8	0.000292			
8	-3.7	-3.7	0.000425			
9	-3.6	-3.6	0.000612			
10	-3.5	-3.5	0.000873			
11	-3.4	-3.4	0.001232			
12	-3.3	-3.3	0.001723			
13	-3.2	-3.2	0.002384			
14	-3.1	-3.1	0.003267			
15	-3	-3	0.004432	-3		
16	-2.9	-2.9	0.005953			
17	-2.8	-2.8	0.007915			
18	-2.7	-2.7	0.010421			
19	-2.6	-2.6	0.013583			
20	-2.5	-2.5	0.017528			
21	-2.4	-2.4	0.022395			
22	-2.3	-2.3	0.028327			
23	-2.2	-2.2	0.035475			
24	-2.1	-2.1	0.043984			
25	-2	-2	0.053991	-2		
26	-1.9	-1.9	0.065616			

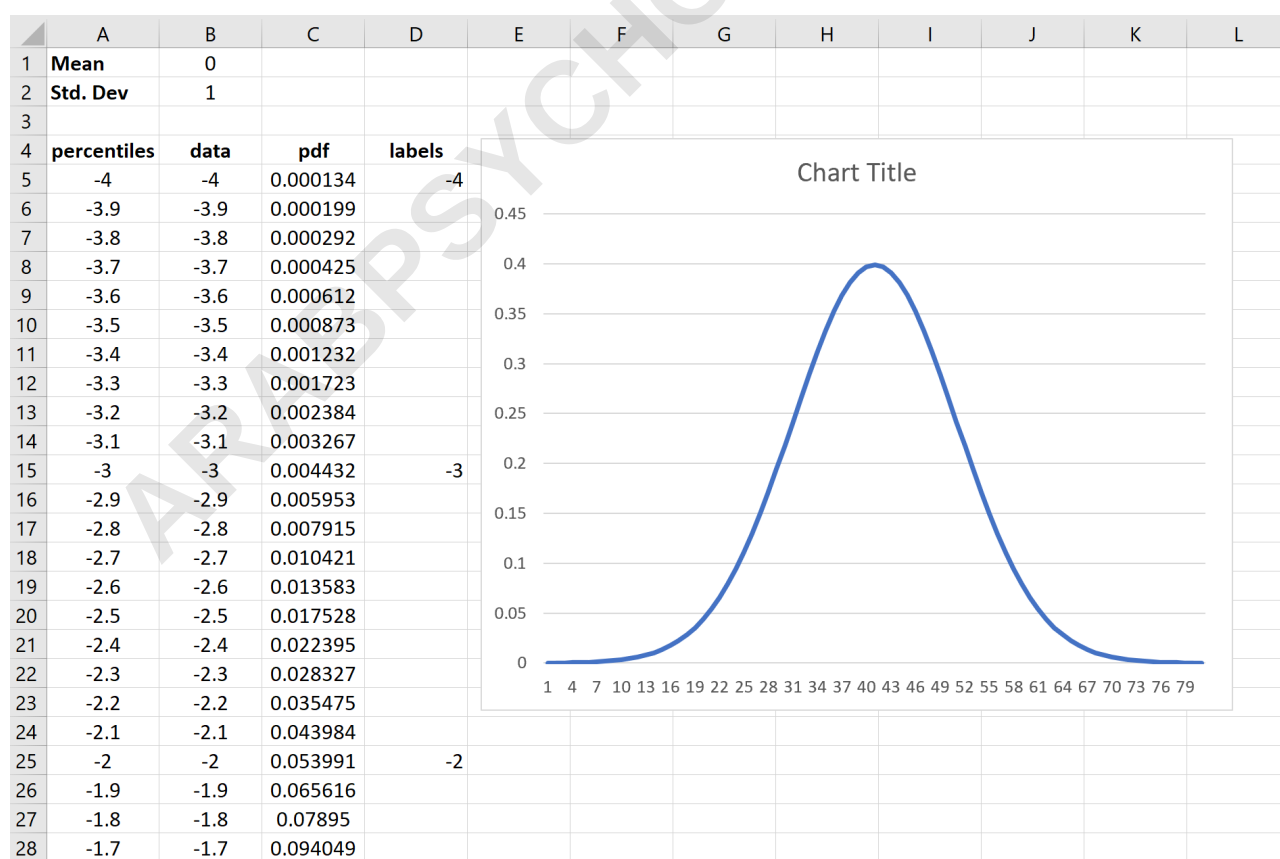
First, highlight all of the values in the pdf column:

	A	B	C	D	E	F
1	Mean	0				
2	Std. Dev	1				
3						
4	percentiles	data	pdf	labels		
5	-4	-4	0.000134	-4		
6	-3.9	-3.9	0.000199			
7	-3.8	-3.8	0.000292			
8	-3.7	-3.7	0.000425			
9	-3.6	-3.6	0.000612			
10	-3.5	-3.5	0.000873			
11	-3.4	-3.4	0.001232			
12	-3.3	-3.3	0.001723			
13	-3.2	-3.2	0.002384			
14	-3.1	-3.1	0.003267			
15	-3	-3	0.004432	-3		
16	-2.9	-2.9	0.005953			
17	-2.8	-2.8	0.007915			
18	-2.7	-2.7	0.010421			
19	-2.6	-2.6	0.013583			
20	-2.5	-2.5	0.017528			
21	-2.4	-2.4	0.022395			
22	-2.3	-2.3	0.028327			
23	-2.2	-2.2	0.035475			
24	-2.1	-2.1	0.043984			
25	-2	-2	0.053991	-2		
26	-1.9	-1.9	0.065616			
27	-1.8	-1.8	0.07895			

Then, in the Charts group on the Insert tab, click the first plot option in the Insert Line or Area Chart category:

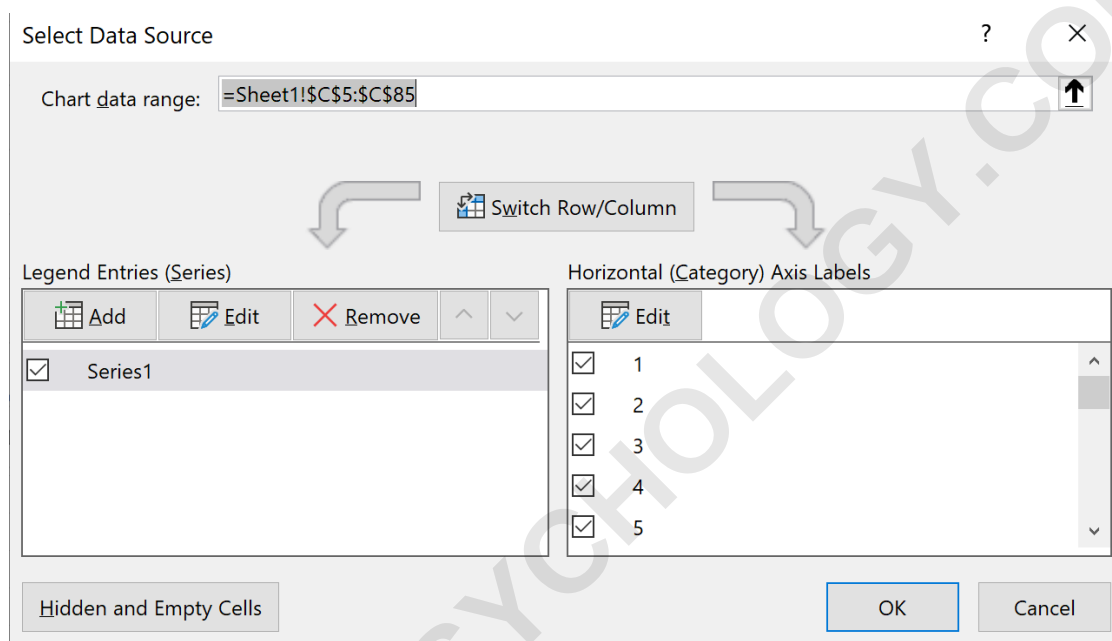


A bell curve will automatically appear:

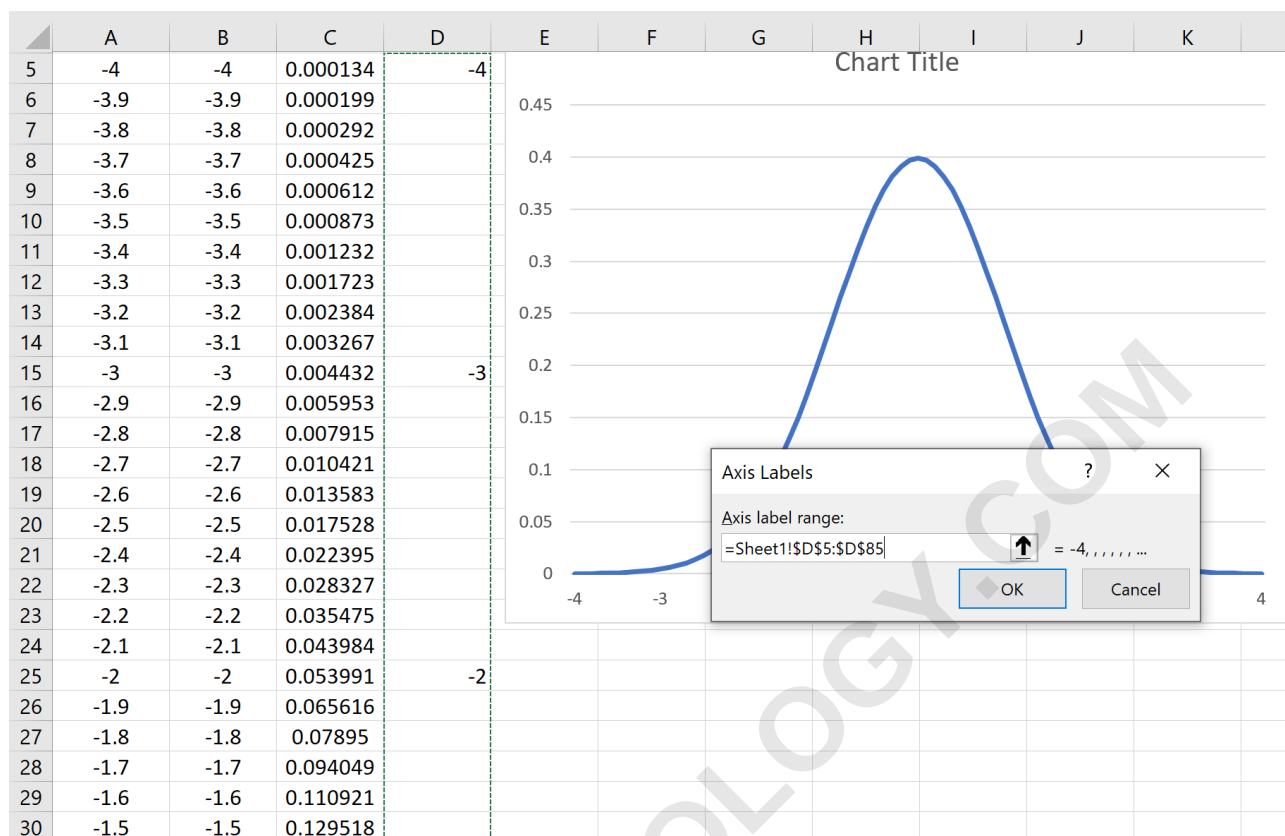


Step 7: Modify the x-axis labels.

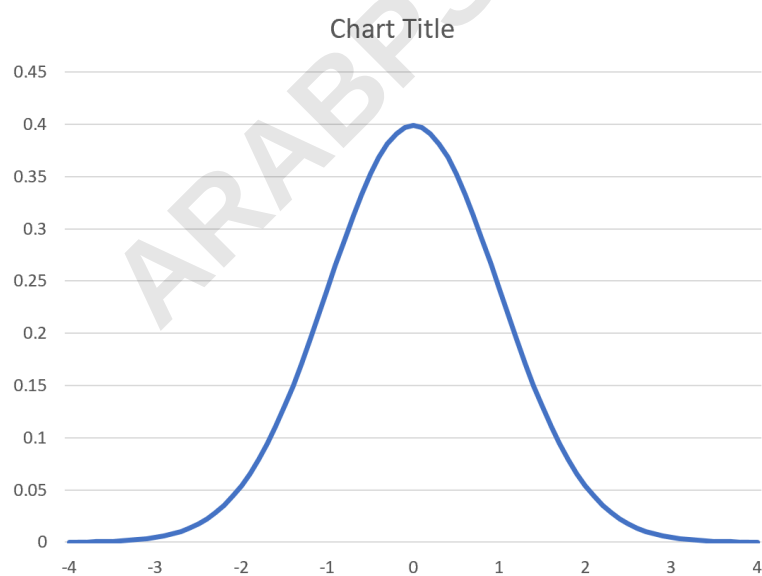
Right click anywhere on the chart and click Select Data. A new window will pop up. Click on the Edit button under Horizontal Axis Labels:



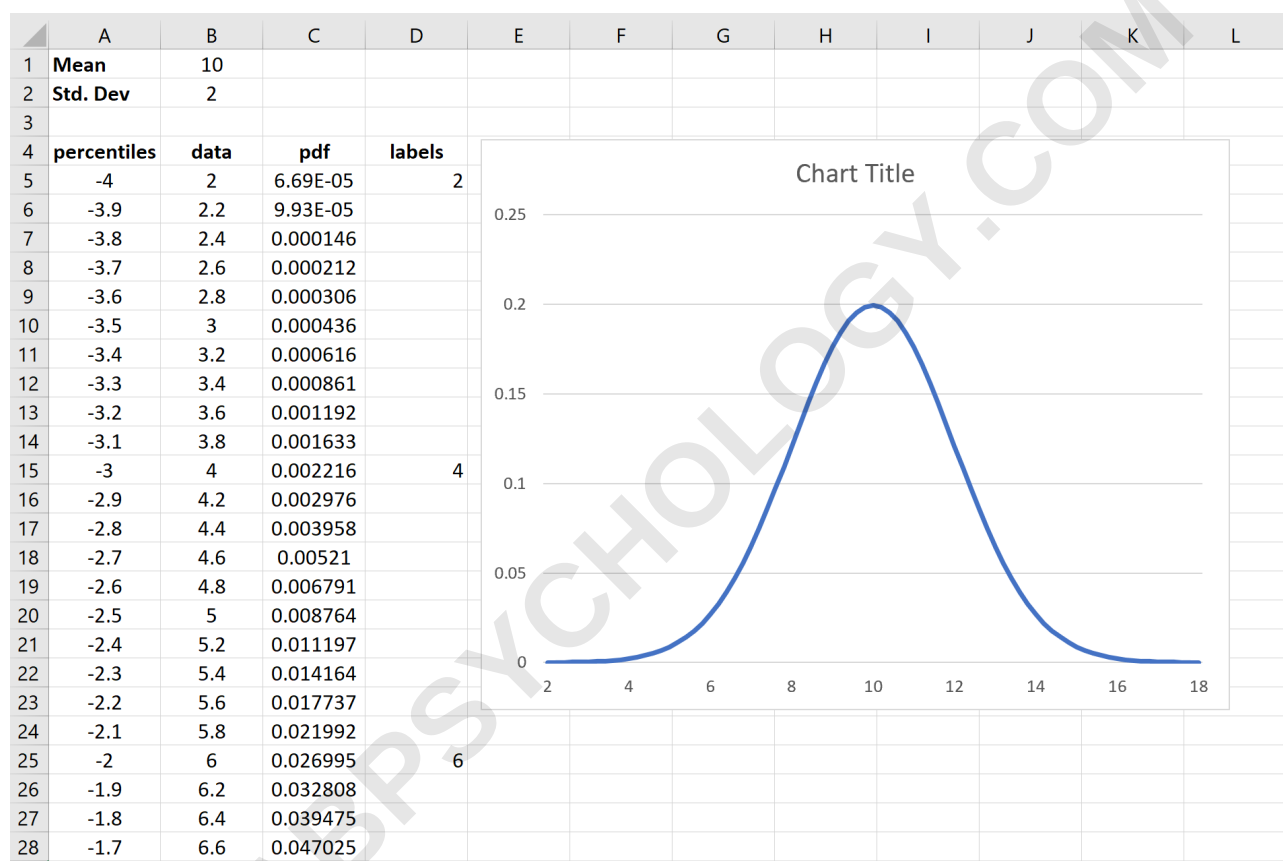
Select the range of cells where the x-axis labels are located. In our case, it's cell range D5:D85. Then click OK.



The x-axis labels will update automatically :



You'll notice that if you change the mean and standard deviation, the bell curve will update automatically. For example, here's what the bell curve turns into if we use mean = 10 and standard deviation = 2:



Feel free to modify the chart title, add axis labels, and change the color if you'd like to make the chart more aesthetically pleasing.

Free Template

Feel free to download [this free template](#) that was used

to make the exact bell curve in this tutorial.

An Introduction to the Normal Distribution

Normal CDF Calculator

How to Plot a Normal Distribution in R

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