

Instructions for calculating the standard deviation in excel.

Data after rolling a 10 sided number cube 15 times.

Number	Frequency
1	2
2	2
3	3
4	1
5	0
6	2
7	2
8	0
9	3
10	0

Step 1: Enter the data in excel and label the columns.

	A	B	C
1	Data	Deviation	Deviation Squared
2	1		
3	1		
4	2		
5	2		
6	3		
7	3		
8	3		
9	4		
10	6		
11	6		
12	7		
13	7		
14	9		
15	9		
16	9		

Step 2: Calculate the mean.

Use the **AutoSum** feature Σ on the standard tool bar. Click a cell below the column of numbers. Click **AutoSum** Σ on the standard toolbar, and then press ENTER. This will give you the sum of all the numbers. You now need to divide the sum by 15, the number of data points. You can do this in the cell below the sum by entering `=A17/15` and push ENTER. This tells excel to get the data in cell A17 (the sum) and divide it by 15.

	A	B	C
1	Data	Deviation	Deviation Squared
2	1		
3	1		
4	2		

5	2		
6	3		
7	3		
8	3		
9	4		
10	6		
11	6		
12	7		
13	7		
14	9		
15	9		
16	9		
17	72		
18	4.8		

Step 3: Calculating the deviation.

In order to calculate the standard deviation, first you must determine how far from the mean each data point is. In excel you will create a formula that will do this for you. In the column next to your data, click on the top cell and type $=A2-4.8$ and push ENTER, which tells excel to take the data in cell A2 and subtract 4.8. Now copy this formula to the other cells by highlighting the cell and pressing Ctrl C. Then highlight the cells that you want to copy the formula to by holding down the mouse button or holding down the SHIFT key while using your arrow keys. Once they are highlighted press Ctrl V to copy the information.

	A	B	C
1	Data	Deviation	Deviation Squared
2	1	-3.8	
3	1	-3.8	
4	2	-2.8	
5	2	-2.8	
6	3	-1.8	
7	3	-1.8	
8	3	-1.8	
9	4	-.08	
10	6	1.2	
11	6	1.2	
12	7	2.2	
13	7	2.2	
14	9	4.2	
15	9	4.2	
16	9	4.2	
17	72		
18	8.4		

Step 4: Squaring the deviation.

Standard deviation requires that you use the sum of the deviations squared so that there are no negative deviations. In the column next to the deviation, click on the top cell and type **=B2^2** and push ENTER, which tells excel to take the data in cell B2 and square it. Copy this formula by highlighting the cell you just entered and pushing Ctrl C. Then highlight where you want to copy the formula and push Ctrl V.

	A	B	C
1	Data	Deviation	Deviation Squared
2	1	-3.8	14.44
3	1	-3.8	14.44
4	2	-2.8	7.84
5	2	-2.8	7.84
6	3	-1.8	3.24
7	3	-1.8	3.24
8	3	-1.8	3.24
9	4	-.08	0.64
10	6	1.2	1.44
11	6	1.2	1.44
12	7	2.2	4.84
13	7	2.2	4.84
14	9	4.2	17.64
15	9	4.2	17.64
16	9	4.2	17.64
17	72		
18	8.4		

Step 5: Summing the squared deviations and calculating the variance.

Use the **AutoSum** feature Σ on the standard tool bar. Click a cell below the column of numbers. Click **AutoSum** Σ on the standard toolbar, and then press ENTER. This will give you the sum of all the numbers. In order to get the variance, you need to divide the sum by 14 (n-1). You can do this in the cell below the sum by entering **=C17/14** and push ENTER. This tells excel to get the data in cell C17 (the sum) and divide it by 14.

Step 6: Calculating the standard deviation.

After the variance has been computed you simply take the square root of it and the result is the standard deviation. In a cell type **=C18^0.5** which tells excel to take the data in cell C18 and take the square root of it.