Lesson 3 & 4: Using Excel functions for Standard Deviation & Z Scores

## **Standard Deviation**

**STDEV** – displays the standard deviation of a group of numbers in a group (or array) of cells Format: **=STDEV**(*starting cell* : *ending cell*)

Choose a cell to type the function (e.g., D1 in the example below) (I've typed a description in the next cell, E1.)



**AVERAGE** – Calculates the average of the numbers in a group (or array) of cells Format: **=AVERAGE**(*starting cell* : *ending cell*)

Choose a cell to type the function (e.g., D2 in the example below) (I've typed a description in the next cell, E2.)

SUM - C X V fx =average(A1:A7)						A7)	
	А	В	С	D	E	F	
1	12			2.07019	7 standar	d deviatior	n
2	14			=average	(A1:A7)		
3	9						
4	8						
5	11						
6	9						
7	10						
0	D2	-	(=	fr -AV	ERAGE/A1.	<u>۸7)</u>	
0	D2	-	0	<i>f</i> ∗ =AV	ERAGE(A1:	A7)	
	D2 A	<b>▼</b> B	C C	<i>f</i> ∗ =AV	ERAGE(A1:	<mark>A7)</mark> F	
1	D2 A <b>12</b>	B	C C	<i>f</i> ∗ =AV D 2.070197	ERAGE(A1: E	A7) F deviation	
1	D2 A 12 14	B	C C	<i>f</i> ∗ =AV D 2.070197 10.42857	ERAGE(A1: E Estandard mean or	A7) F deviation average	
1 2 3	D2 A 12 14 9	B	c	<i>f</i> <b>∗</b> =AV D 2.070197 10.42857	ERAGE(A1: E etandard mean or	A7) F deviation average	
1 2 3 4	D2 A 12 14 9 8	B	c	<i>f</i> <sub>∗</sub> =AV D 2.070197 10.42857	ERAGE(A1: E etandard mean or	A7) F deviation average	
1 2 3 4 5	D2 A 12 14 9 8 8 11	B	c	<i>f</i> ∗ =AV D 2.070197 10.42857	ERAGE(A1: E Matandard mean or	A7) F deviation average	
1 2 3 4 5 6	D2 A 12 14 9 8 11 9	B	C	fx =AV D 2.070197 10.42857	ERAGE(A1: E Atandard mean or	A7) F deviation average	

## Z Score

**STANDARDIZE** – returns the z score for a specific number in a set of data. The standard deviation and mean of the data must be known (or computed) before using the function. Format: **=STANDARDIZE**(*x*, *mean*, *standard deviation*) where x is the number in the set of data for

which you want the corresponding z score

In the example below, the mean of the data is in cell D2 and the standard deviation is in cell D1. We want to find the z score that corresponds to 11 (in cell A5) in the set of data and place it in cell B5.

	cipoodie	14		1 VIII				
sum 👻 🕤 🗙 🗸				/ fx =standardize(A5,D2,D1)				
	А	В	С	D	E	F		
1	12			2.070197	standard deviation			
2	14			10.42857	mean or average			
3	9							
4	8		, K	¥				
5	11	=standard	ize(A5,D2,					
6	9							
7	10							

							_		
B5 •			· (=	fx =S⊺	FANDARDIZE	NDARDIZE(A5,D2,D1)			
	А	В	С		E	F			
1	12			2.07019	7 standard	deviation			
2	14			10.4285	7 mean or	average			
3	9								
4	8	-							
5	11	0.276026 z score for 11 in this set of data							
6	9								
7	10								

Composition of the composition o								
	SUM	-	🕘 🗙 🖌 🎜 =star			ndardize (A4, D2, D1)		
	А	В	С		D	E	F	
1	12			2.070197		standard deviation		
2	14			10.42857		mean or average		
3	9							
4	8	=standardize(A4,D2,D1)						
5	11	0.276026	0.276026 z score for 11 in this set of data					
6	9							
7	10							

Example: find the z score for 8 (in cell A4) in the set of data and place it in cell B4.

B4 👻 🖱					=STA	NDARDIZE	(A4,D2,D1)	
	А	В	С	0	)	E	<b>∕</b> ⊧1	
1	12			207	0197	standard	deviation	
2	14			10.4	2857	mean or	average	
3	9							
4	8	-1.17311	z score fo	or 8 in	this s	set of data		
5	11	0.276026 z score for 11 in this set of data						
6	9							
7	10							