



1.7: Standard Deviation and Z-Score

The z-score tells how many standard deviations a data value lies above or below the mean.

Therefore,

A positive z-score means _____.

A negative z-score means _____.

A z-score of 0 means _____.

Example) A data set has a mean of 15 and a standard deviation of 2. Find the z-score of the following data values.

21: 11: 19: 18: 4:

25: 7: 15: 30: 13:



Population vs. Sample

Recall that...

	Sample	Population
Mean		
Standard Deviation		

What do you think about the z-score?

	Sample	Population
z-score		



Example) Let $\bar{x} = 80$ and $s = 10$. Find the following z-scores for the listed scores in the table below.

Score	Z-Score
85	
70	
100	
90	
95	
75	
80	
83	
72	
97	
60	



A patient recently diagnosed with Alzheimer's disease takes a cognitive abilities test. The patient scores a 45 on the test. The test has a mean of 52 with a standard deviation of 5.

What z-score would the patient be given?



A student in AP Statistics gets a graded paper back with the following data written at the top of their paper.

$$\bar{x} = 82, s = 2, z = 1.5$$

What is the student's score on the test?



-Open the Fathom File titled "Motor Vehicles"

-Analyze the Data (analyzing the data now includes finding the standard deviation)

-Calculate the Z-score for the following states

CA, SC, FL, NY