Precalculus
1.7 Notes

Name:
Date: Block:

1.7: Z-score

Z-Score	

A positive z-score means:

A negative z-score means:

A z-score of 0 means:

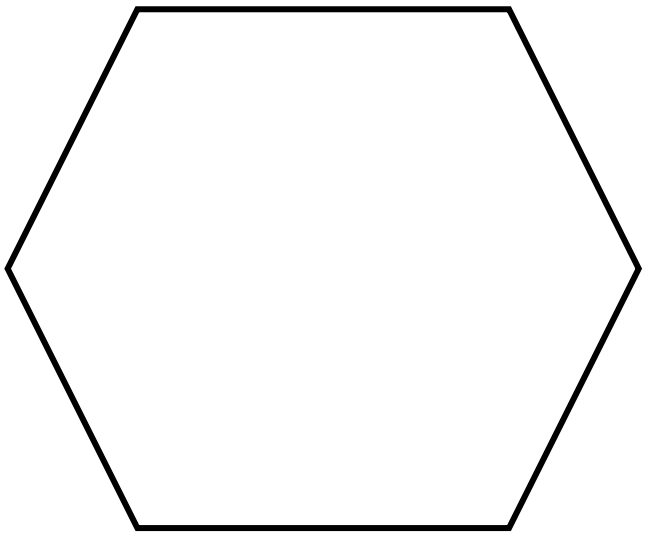
Example: A data set has a mean of 15 and a standard deviation of 2. Determine the z-scores of each data value given below.

Data Value	21	11	19	25	7	15	18	30	4
Z-score									

Sample vs. Population

	Sample	**Population**
Mean		
Standard Deviation		
Z-Score		

Standard Deviation Formula



Example:
A chemistry teacher is teaching two sections of the same tenth grade chemistry course at Fort Calhoun High School. After giving the first major assessment of the year, the teacher calculates the mean for each section and the standard deviation. What observations do you have about the two sections based on the provided data.

Section A	Section B
12 students Mean = 82% Median = 88% Standard Deviation = 2.5	16 students Mean = 82% Median = 83% Standard Deviation = 6.3

Observations:

In both sections of chemistry there was exactly one student who earned a score of 75. Calculate the z-scores for the student from each section.

Section A student: Section B student:

Example:
A patient is diagnosed with Alzheimer's disease and is tested using a cognitive abilities test to determine the severity and progression of the disease. The test has a mean of 52 with a standard deviation of 5. The patient scores a 45 on the test. What is the patient's z-score and how is it interpreted?

Example:
A college professor of statistics gives three major exams in his semester course. Students do not see what they earned on their papers when they are handed back. Instead, the professor gives the mean of the assessment, the standard deviation of the assessment, and the student's z-score. How should Andy interpret his performance on the first exam he received back given the information written at the top of his paper?

$\bar{x} = 95, s = 1.5, z = -3$