

Name: _____

Z Score Worksheet (Challenge Option)

The basic z score formula for a sample is:

$$z = (x - \mu) / \sigma$$

For example, let's say you have a test score of 190. The test has a mean (μ) of 150 and a **standard deviation** (σ) of 25.

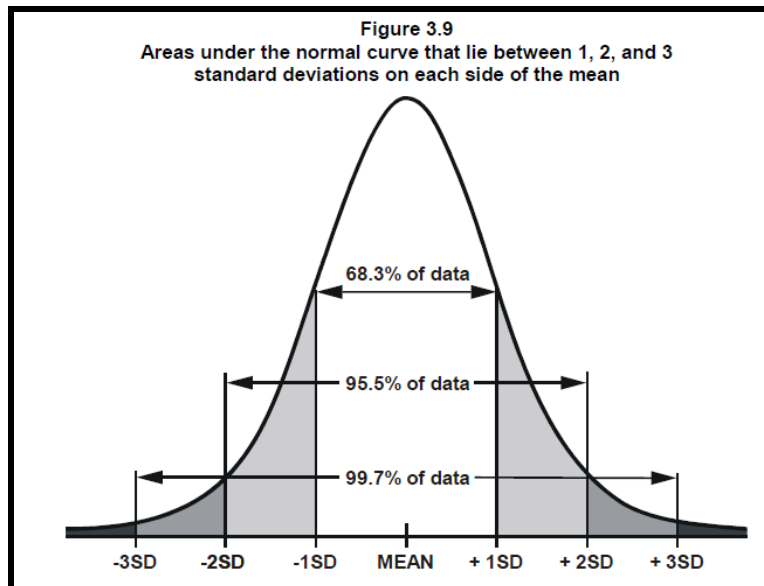
Assuming a **normal distribution**, your z score would be:

$$z = (x - \mu) / \sigma$$

$$= 190 - 150 / 25 = 1.6.$$

The z score tells you how many standard deviations from the mean your score is. In this example, your score is 1.6 standard deviations *above* the mean.

Bell Curve



Use the following table for the problems.

	High School Female Shoe Sizes
1	10
2	7.5
3	8
4	7
5	8
6	6.5
7	9

2) What is the data value associated with a z-score of 2.1?

3) What is the data value associated with a z-score of -1.7?

4) What is the range of data values that would allow 68% of the data to fall within the mean?

5) What is the variance of this data set?

6) Are there any outliers with this data set?(Outliers refer to data points that lie beyond 3 standard deviation from the mean)

7) What is the data value associated with a z-score of 2?

8) What is the data value associated with a z-score of -0.8

9) What is the range of data values so that 95% of the data would be within the mean?

10) Draw a rough sketch of the bell curve using the data from the previous sheet.

