

Cave Pterodactyl: Is it normal?

Name _____

Data Set: From the game

Fill in your data set, each person may end up with a slightly different data set. Students in the class download play the game. Students share scores at the end of each round. Try to get the highest score!

Collect and record 40 scores here.

_____, _____, _____, _____, _____, _____, _____,
 _____, _____, _____, _____, _____, _____, _____,
 _____, _____, _____, _____, _____, _____, _____,
 _____, _____, _____, _____, _____, _____, _____,
 _____, _____, _____, _____, _____, _____, _____,
 _____, _____, _____, _____, _____, _____, _____



Find the **Mean** _____ and the

Sample Standard Deviation _____

You may want to try this calculator out online which shows how the numbers are calculated.

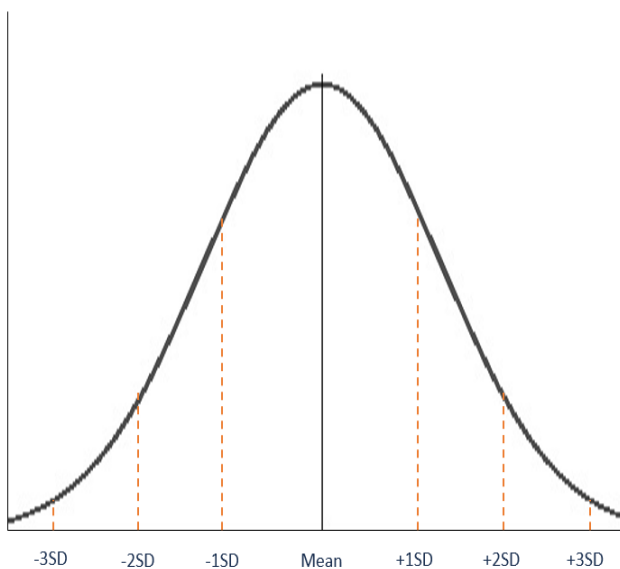
<https://mathcracker.com/mean-standard-deviation-calculator>

Standard Deviation

$$\sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

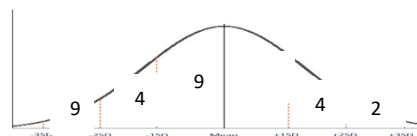
76	84	69	92	58
89	73	97	85	77

$$\bar{X} = \frac{\text{Sum}}{n}$$



The diagram on the left is a normal curve. Label the bottom of the diagram using your calculated mean and standard deviation (+1SD means the mean +1 standard deviation).

Count how many scores from your data set are in each section and label the diagram in the appropriate sections. See example below...



Now let's decide if your data set approximates a normal data set.

What percent of the data is found between $-1SD$ and $+1SD$? _____

In a normal distribution 68% of data falls between $-1SD$ and $+1SD$.

What percent of the data is found between $-2SD$ and $+2SD$? _____

In a normal distribution 95% of data falls between $-2SD$ and $+2SD$.

What is normal distribution?

A normal distribution is a type of continuous probability distribution in which most data points cluster toward the middle of the range, while the rest taper off symmetrically towards the extremes. The middle of the range is also known as the *mean* of the distribution.

Normal distributions are common in nature. Heights or weights of individuals, weights of chickens in a coop, and circumference of apples in an orchard are examples of data sets that would be approximately normal.

Do you think your data set approximates a normal distribution? Why or why not?

Do you think if more data were added the distribution would become more normal or less normal? Why?