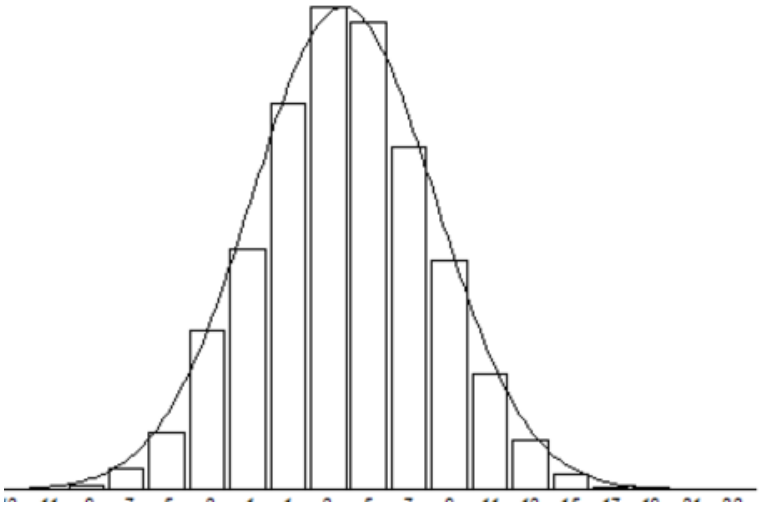
Normal Distribution Curve

There are many cases where the data tends to be around a [ ] [ ] with no [ ] left or right, and it gets close to a "[ ] Distribution".



The "[ ]" is a [ ] Distribution. And the histogram above shows some data that follows it closely, but not perfectly (which is usual).

Many things closely follow a Normal Distribution:

- [ ] of people
- [ ] of things produced by machines
- [ ] in measurements
- [ ] pressure
- [ ] on a test

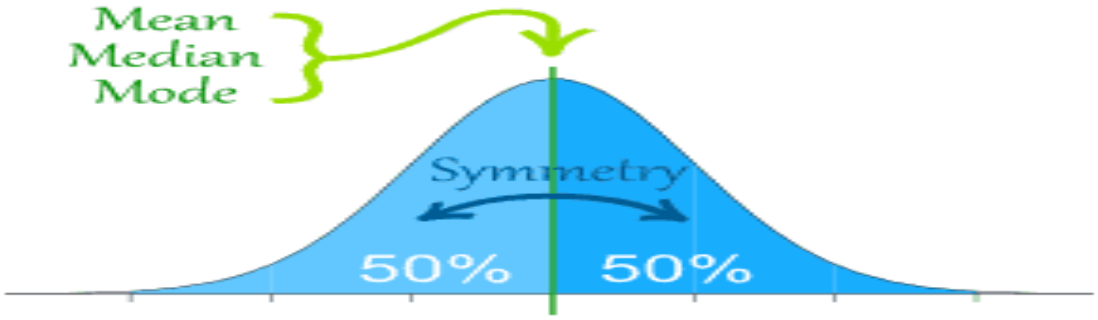
We say the data is '[ ] distributed":

The Normal Distribution has:

[ ] = [ ] = [ ]

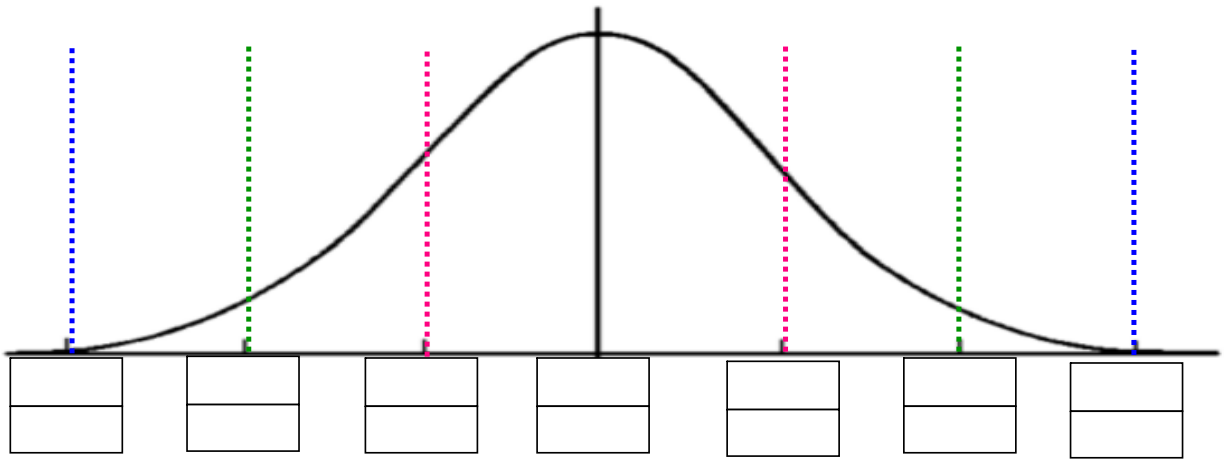
[ ] about the center

50% of values [ ] than the mean and 50% [ ] than the mean



Standard Deviations

The Standard Deviation is a [ ] of how [ ] out numbers are. When we calculate the standard deviation we find that (generally) the following is true:

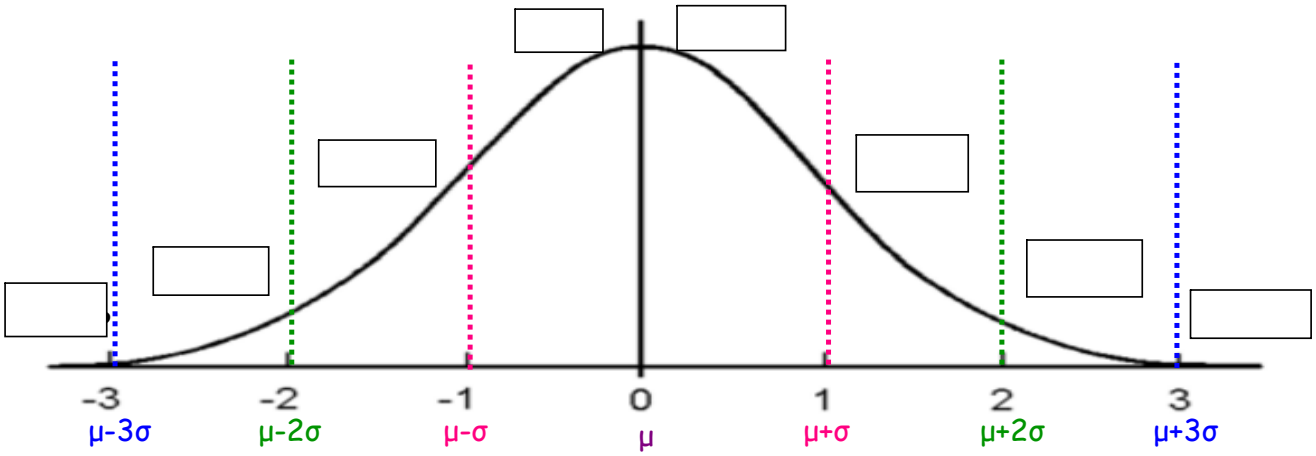


New symbol for mean [ ]

New symbol for standard deviation [ ]

Under the Curve

The area under the curve relates to a [ ] (given as a [ ]) that a given data is [ ] each of the standard deviation bars.



_____ % of the data values lie below (to the left of) the mean.

_____ % of the data values lie above (to the right of) the mean.

_____ % of the data values lie with in ONE standard deviation the mean.

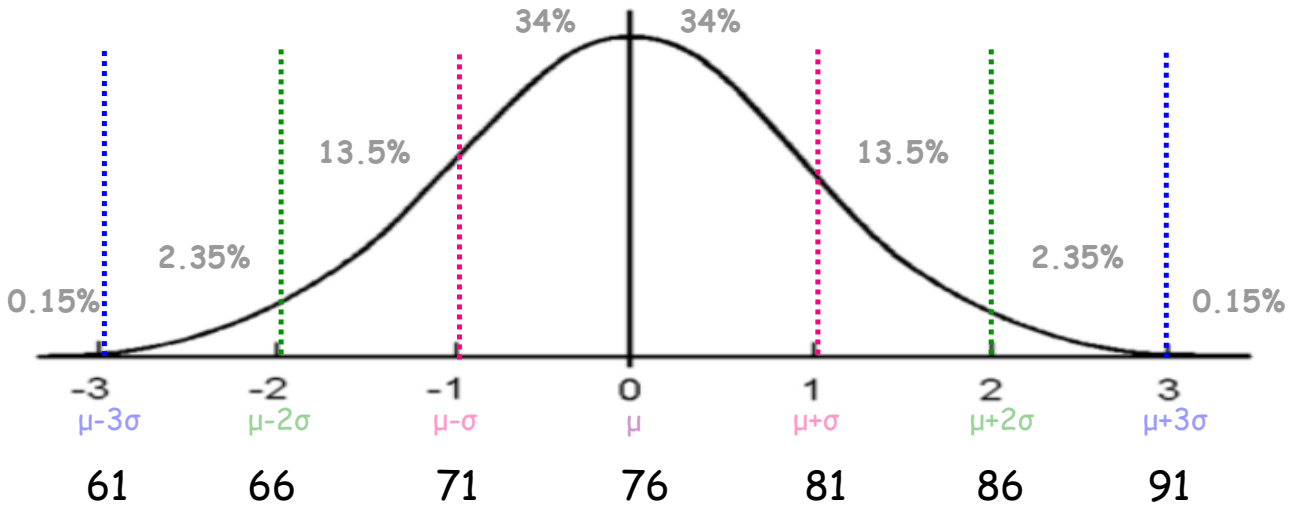
_____ % of the data values lie with in TWO standard deviation the mean.

_____ % of the data values lie with in THREE standard deviation the mean.

It is good to know the standard deviation, because we can say that any value is:

- to be within standard deviation (68 out of 100 should be)
- to be within standard deviations (95 out of 100 should be)
- almost within standard deviations (997 out of 1000 should be)

2000 freshman at the University of Montevallo took a biology test. The scores were distributed normally with a mean of 76 and a standard deviation of 5. Label the mean and 3 standard deviation s for the mean.



What percent of scores are between 71 and 81? _

What percent of scores are between 61 and 76?_

What percent of scores are less than 61 ?_

What percent of scores are greater than 86?_

Approximately how many students scored between 61 and 71?_

Between what two scores is 95% of students scores fall?

A score of 76 corresponds to what percentile of student scores?_