

3.13: Variability Demo

Learning Objectives

- Identify differences in the means and standard deviations of distributions

Instructions

The demonstration shows a graph of two normal distributions. Both distributions have means of 50. The red distribution has a standard deviation of 10; the blue distribution has a standard deviation of 5. You can see that the red distribution is more spread out than the blue distribution. Note that about two thirds of the area of the distributions is within one standard deviation of the mean. For the red distribution, this is between 40 and 60; for the blue distribution, this is between 45 and 55. About 95% of a normal distribution is within two standard deviations from the mean. For the red distribution, this is between 30 and 70; for the blue it is between 40 and 60.

You can change the means and standard deviations of the distributions and see the results visually. For some values, the distributions will be off the graph. For example, if you give a distribution a mean of 200, it will not be shown.

Illustrated Instructions

The demonstration starts with 2 normal distributions with equal means and different standard deviations (see screenshot below).

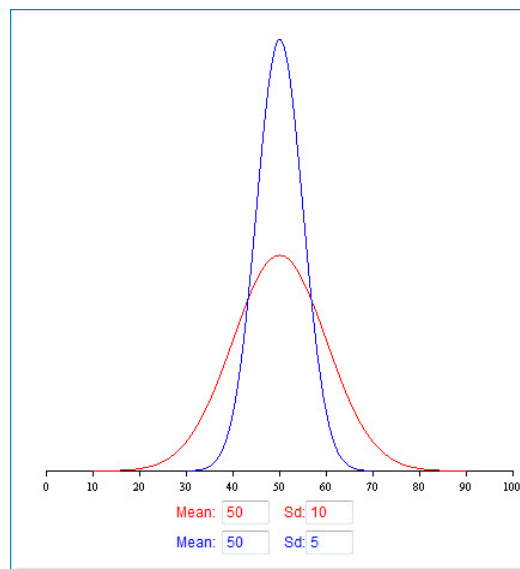


Figure 3.13.1: Normal Distributions variability demo

The means and standard deviations for both distributions can be changed and these changes will be reflected in the graph. The screenshot below shows the distributions with different means and standard deviations.

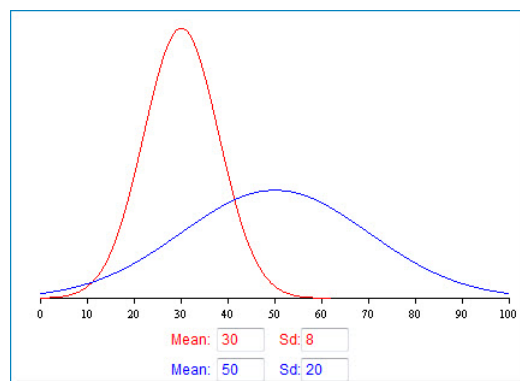


Figure 3.13.2: Distributions with different means and standard deviations

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