6-4 Populations and Samples

Objective:

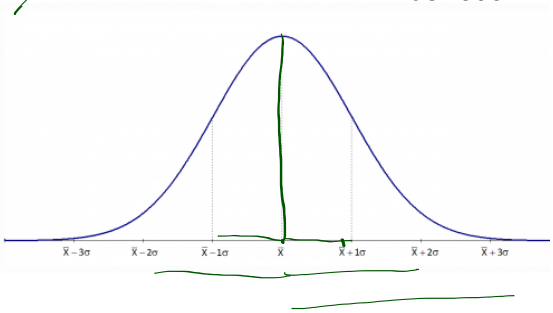
I can find population percentages of a normal distribution (68-95-99.7 rule).

Mar 29-2:45 PM

68-95-99.7 Rule

A normally distributed curve has the mean in the center of the curve and then moves out the amount of the standard deviation in both directions

$\bar{X}$ =mean $\sigma =$ standard deviation

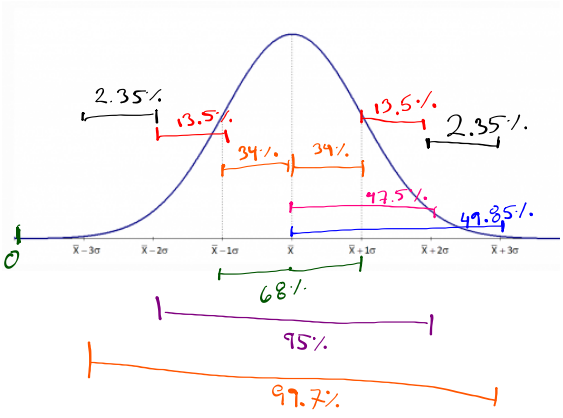


Apr 13-10:39 AM

68% of the data is out 1 σ in each direction

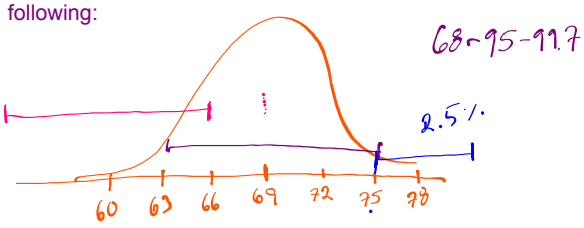
95% of the data is out 2 σ in each direction

99.7% of the data is out 3 σ in each direction



Jan 9-9:15 AM

Suppose the heights (in inches) of men ages 20-29 in the United States are normally distributed with a mean of 69 inches and a standard deviation of 3 inches. Find the following:



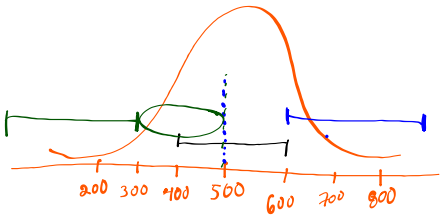
a) What percent of men are between 63in and 75in? 95%

b) What percent of men are shorter than 66in? 50 - 34 = 16%

c) What percent of men are taller than 75in? 2.5%

Mar 29-2:56 PM

A college entrance exam is designed so that scores are normally distributed with a mean of 500 and a standard deviation of 100.



a) What percent of exam scores are between 400 and 600?

68%

b) What percent of scores are above 600?

50 - 34 = 16%

50 - 47.5 = 2.5%

c) What percent of scores are less than 300?

Mar 29-3:17 PM

Sources of Bias

1. Nonresponse: subjects do not respond to the survey

2. Under coverage: a portion of the population with some commonality is excluded from the survey

3. Voluntary response: individuals choose to be apart of the survey

4. Response bias: systematic difference between subject's response and the "truth" (i.e. lying)

Apr 13-11:12 AM

What kinds of bias could happen here?

May 3-1:52 PM

What kinds of bias could happen here?

May 3-1:34 PM

What kinds of bias could happen here?

May 3-1:51 PM