

Central Limit Theorem for Means

Parent distribution (population):

- ☒ Normal
- ☐ Uniform
- ☐ Right skewed
- ☐ Left skewed

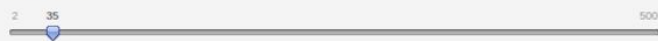
Mean



Standard deviation



Sample size:



Number of samples:



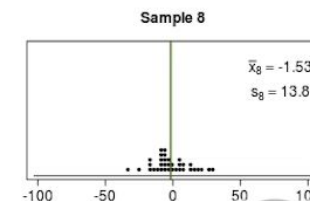
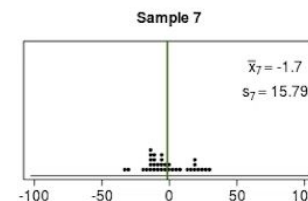
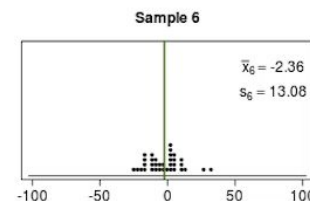
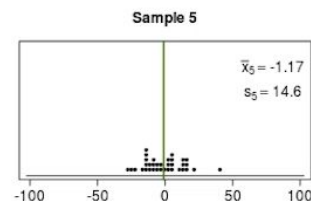
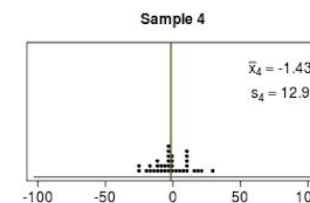
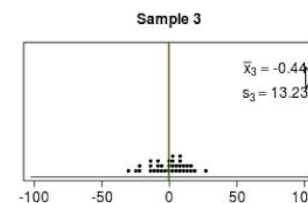
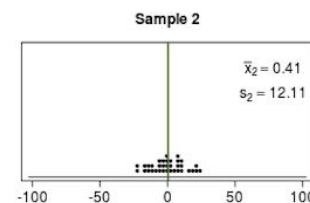
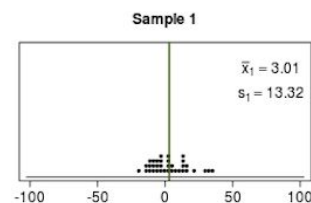
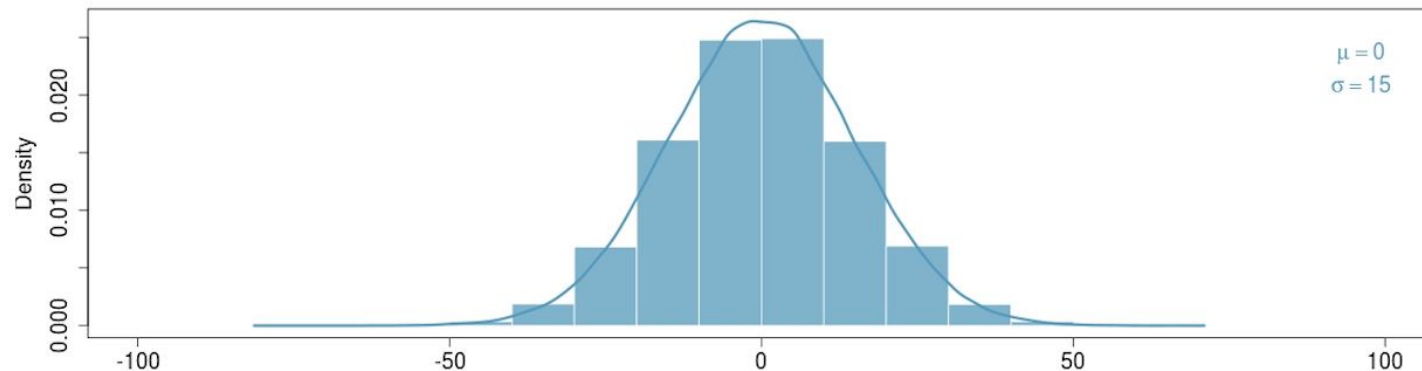
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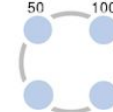
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Population distribution: Normal

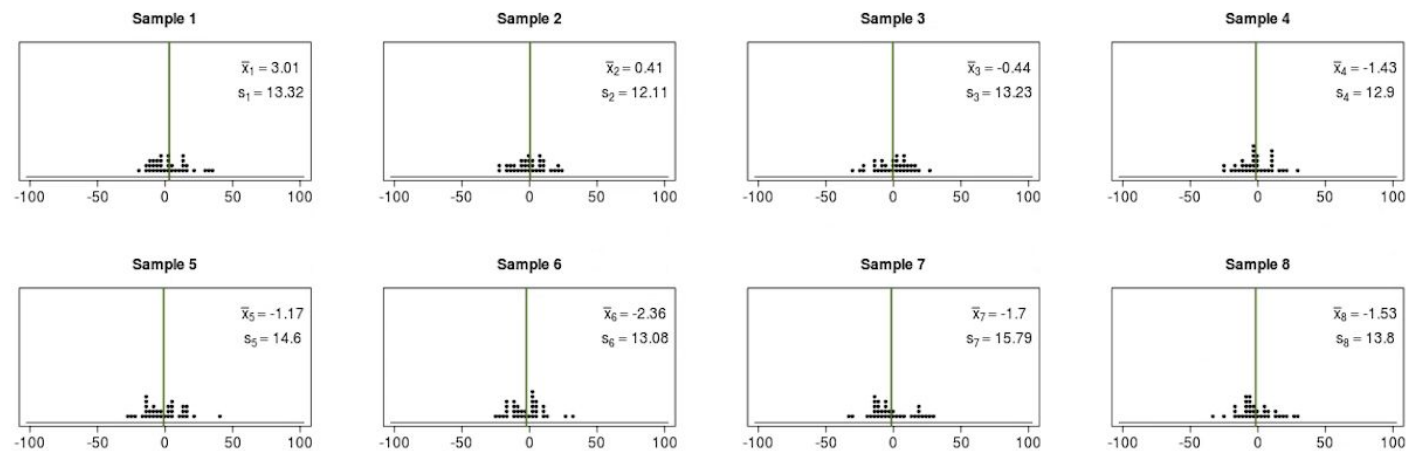


... continuing to Sample 501.

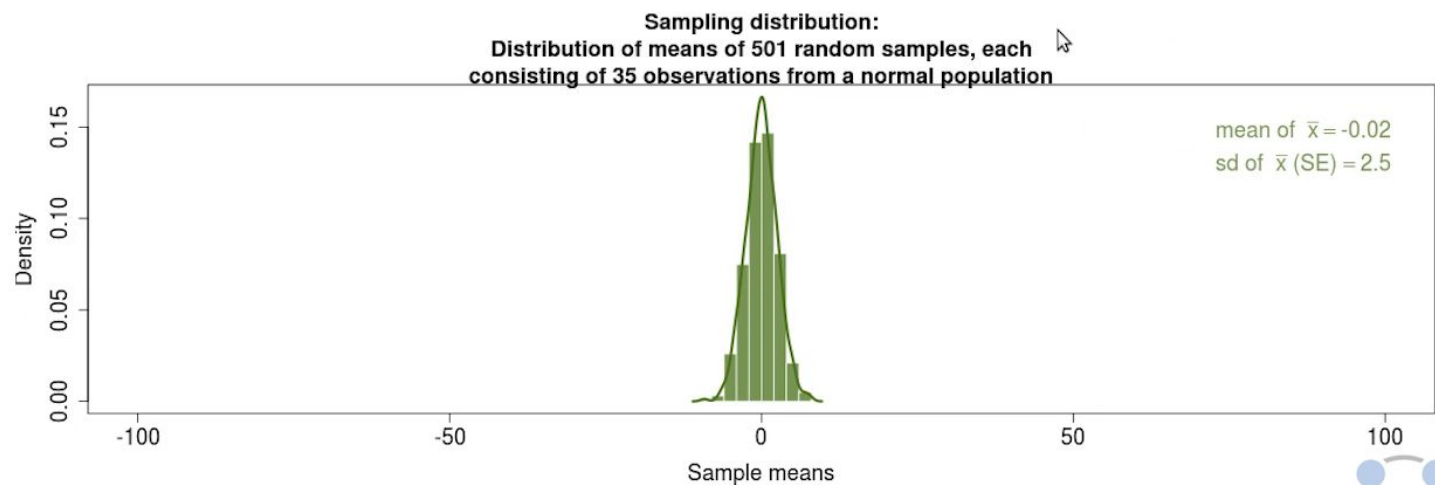


number of samples: 10 501 1,000

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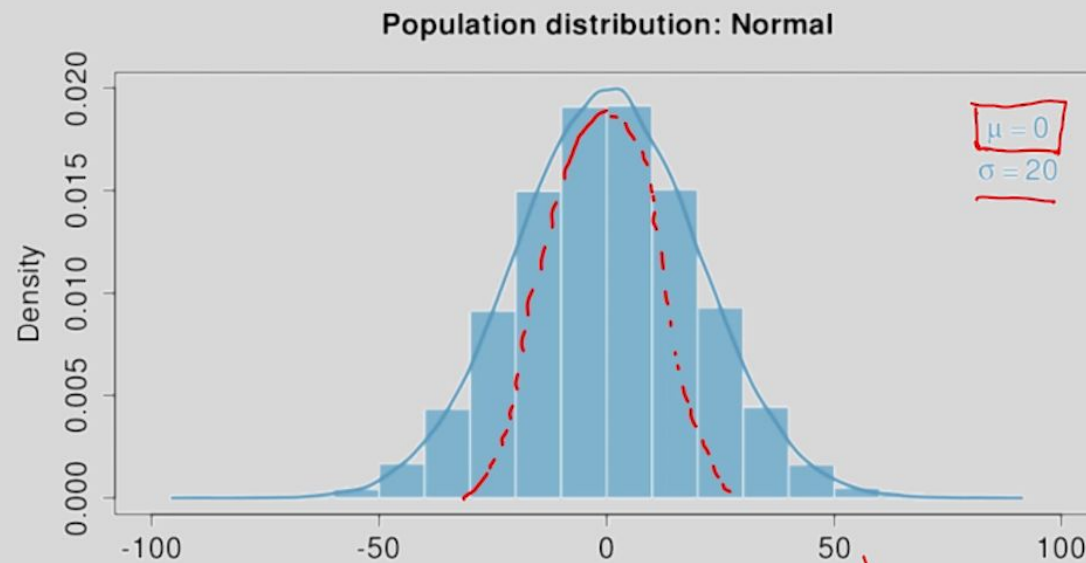


... continuing to Sample 501.



Distribution of means of 501 random samples, each consisting of 35 observations from a normal population

According to the Central Limit Theorem (CLT), the distribution of sample means (the sampling distribution) should be nearly normal. The mean of the sampling distribution



$n > 30$

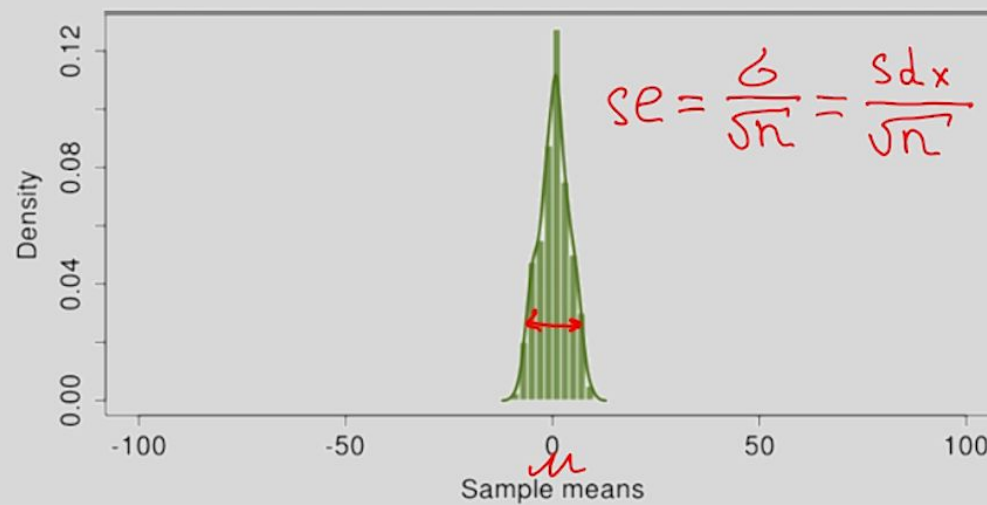
\bar{x}_1

\bar{x}_2

\vdots

\bar{x}_n

Sampling distribution:



$n = 100$ $sd = 5$ $\bar{x} = 3$

$se = \frac{5}{\sqrt{100}} = 0.5$

