Math Statistics
Semiweekly HW 4

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September 15, 2020

Question 1

Problem: The square root of the sample variance $\sigma_{\bar{X}}$ is generally called the standard error of the sample. If a sample size is changed from $n = 30$ to $n = 90$, how does this affect the standard error?

Solution: Recall that the standard error of the sample is given by:

$$\sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}}$$

From this definition, it is clear that the standard error is inversely proportional to the square root of the sample size. That is to say, as n increases, $\sigma_{\bar{X}}$ decreases.