TOPIC
Engineering Probability and Statistics – Section II – Question 7

QUESTION
We wish to estimate the mean μ of a population by the sample mean, $\bar{x}$, drawn from the population. Let n and s be the sample size and sample standard deviation, respectively. The probable accuracy of the estimate improves with an increase in

(A) μ
(B) s
(C) n
(D) μ+s

HINT
The simple sample average is an unbiased point estimate for μ, and the standard error of this estimator is $\frac{\sigma}{\sqrt{n}}$.

SOLUTION
As the sample size n increases, the standard error, $\frac{\sigma}{\sqrt{n}}$, of the estimator decreases. This means that the probable accuracy of the estimate improves as n increases.

ANSWER
(C)

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