

2. The weights of a random sample of 25 runners averaged 60 kg. Suppose that the standard deviation of the population is known to be 10 kg.
- What is $\sigma_{\bar{X}}$, the standard deviation of the sample average \bar{X} ?
 - Find the 99% margin of error for estimating the population mean μ using \bar{X} .
 - Give a 90% confidence interval for μ .
 - Exactly how would the confidence interval in (c) change if the sample average were based on a random sample of 100 runners?
 - How large a sample would be required to estimate μ within ± 0.1 kg with 95% confidence?

