

EPPS 6313 : Recitation Session #2

Problem 1

By using the IQ example below, with a population average = 100 and population standard deviation = 15, Calculate the probability that a randomly selected person would have :

1. An IQ of 115 or more
2. An IQ between 100 and 120
3. An IQ between 80 and 90
4. An IQ between 70 and 100

Problem 2

If a random sample of size $n = 20$ from a normal population with the variance $\sigma^2 = 225$ has the mean $\bar{x} = 64.3$, construct a 95% confidence interval for the population mean μ

EPPS 6316 : Recitation Session #2

Problem 1

For the simple regression $Y_i = \beta_1 + \beta_2 X_i + u_i$, verify the following numerical properties of the OLS estimators :

$$\sum e_i \hat{Y}_i = 0$$

$$\sum \hat{Y}_i = \sum Y_i$$

Problem 2

Show $cov(\hat{\beta}_1, \hat{\beta}_2) = -\bar{X} var(\hat{\beta}_2) = -\sigma^2 \frac{\bar{X}}{\sum x_i^2}$