

Answer on Question #84953 – Math – Statistics and Probability

Question

The daily caloric intake for samples of adult males and females have these statistics:

Sample Size Mean Standard Deviation

Males 15 2700 500

Females 10 2200 300

A 99% confidence interval for the difference in the true mean daily caloric intake of adult males and females is calculated. Which is a correct interpretation of this interval?

- A) In repeated samples of 15 adult males and 10 adult females, 99% of similarly constructed intervals will contain the difference in true mean daily caloric intake between adult males and females.
- B) In repeated samples of 15 adult males and 10 adult females, 99% of similarly constructed intervals will contain the difference in sample mean daily caloric intake between adult males and females.
- C) The probability that $\mu_1 - \mu_2$ lies in the calculated interval is 0.99.
- D) Approximately 99% of samples of 15 adult males and 10 adult females will have a difference in daily caloric intake between the lower and upper endpoints of the calculated confidence interval.

Solution

The confidence interval Δ is defined as such an interval that

$$P(\mu_1 - \mu_2 \in \Delta) = 0.99$$

Hence the answer is C).

Answer: C) The probability that $\mu_1 - \mu_2$ lies in the calculated interval is 0.99.

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