

Exercise for Week 10

⚠ This is a preview of the published version of the quiz

Started: 20 Oct at 18:22

Quiz instructions

Quiz time is from 09:15am to 10:30am of October 18.

Question 1

1 pts

Assume $X \sim N(10, 25)$. Then $P(0 \leq X \leq 25) = ?$

Note: $\Phi(3) = 0.99865$, $\Phi(2) = 0.97725$, $\Phi(0.6) = 0.72574$,
 $\Phi(0.4) = 0.65542$.

☐ 0.9973

☒ 0.9759

☐ 0.9545

☐ 0.3812

Question 2

1 pts

Suppose for the population, the random variable X follows a Bernoulli distribution with an unknown parameter p . Let $\{X_1, X_2, \dots, X_n\}$ be a random sample from this distribution. Which of the following is **NOT** a statistic?

☐ All of the other options are statistics

☐ $X_1 + 0.5X_2$

☐ $X_5 + 2X_n$

☒ $\frac{(X_5 - X_1)^2}{\text{var}(X_1)}$

Question 3**1 pts**

Let $\{X_1, X_2, \dots, X_n\}$ be a random sample; \bar{X} and S^2 are respectively the sample mean and sample variance based on this random sample. Which of the following may **NOT** be correct?

☐ $E(\bar{X}) = E(X_1)$

☐ $S^2 = \frac{\sum_{i=1}^n X_i^2 - n\bar{X}^2}{n-1}$

☒ $E(S) = \sqrt{\text{var}(X_1)}$

☐ $E(S^2) = \text{var}(X_1)$

Saved at 18:23

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