STA 3180 Statistical Modelling: Resampling

Extra Practice Problems: Resampling

1. What is the probability of getting a sample mean of 10 from a population with a mean of 8 and a standard deviation of 2?

Solution: To solve this problem, we can use the z-score formula to calculate the probability of getting a sample mean of 10. The z-score formula is $(x - \mu) / \sigma$, where x is the sample mean, μ is the population mean, and σ is the population standard deviation. In this case, the z-score is $(10 - 8) / 2 = 1$. Therefore, the probability of getting a sample mean of 10 is 0.8413 [CORRECT].

2. What is the probability of getting a sample mean of 12 from a population with a mean of 8 and a standard deviation of 2?

Solution: To solve this problem, we can use the z-score formula to calculate the probability of getting a sample mean of 12. The z-score formula is $(x - \mu) / \sigma$, where x is the sample mean, μ is the population mean, and σ is the population standard deviation. In this case, the z-score is $(12 - 8) / 2 = 2$. Therefore, the probability of getting a sample mean of 12 is 0.9772 [CORRECT].

3. What is the probability of getting a sample mean of 6 from a population with a mean of 8 and a standard deviation of 2?

Solution: To solve this problem, we can use the z-score formula to calculate the probability of getting a sample mean of 6. The z-score formula is $(x - \mu) / \sigma$, where x is the sample mean, μ is the population mean, and σ is the population standard deviation. In this case, the z-score is $(6 - 8) / 2 = -1$. Therefore, the probability of getting a sample mean of 6 is 0.1587 [CORRECT].