

Hypothesis Testing

Questions



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Question 1: What is a null hypothesis (H_0) and why is it important in hypothesis testing?

Question 2: What does the significance level (α) represent in hypothesis testing?

Question 3: Differentiate between Type I and Type II errors.

Question 4: Explain the difference between a one-tailed and two-tailed test. Give an example of each.

Question 5: A company claims that the average time to resolve a customer complaint is 10 minutes. A random sample of 9 complaints gives an average time of 12 minutes and a standard deviation of 3 minutes. At $\alpha = 0.05$, test the claim.

Question 6: When should you use a Z-test instead of a t-test?

Question 7: The productivity of 6 employees was measured before and after a training program.

Employee	Before	After
1	50	55
2	60	65
3	58	59
4	55	58
5	62	63
6	56	59

At $\alpha = 0.05$, test if the training improved productivity.

Question 8: A company wants to test if product preference is independent of gender.

Gender	Product A	Product B	Total
Male	30	20	50
Female	10	40	50
Total	40	60	100

At $\alpha = 0.05$, test independence