

# Hypothesis Testing

## Questions



## Hypothesis Testing

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

**Question 2:** What does the significance level ( $\alpha$ ) 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