

1) A recent survey of gasoline prices indicated that the national average was \$4.098 per gallon. The Dallas Automobile Club claimed that gasoline in Texas was significantly lower than the national average. A survey covering 10 different suburbs in Dallas found the average price of gasoline to be \$3.924 per gallon with a population standard deviation of \$0.33, At $\alpha = 0.05$:

1) _____

- a) State the hypotheses and identify the claim.
- b) Find the critical value.
- c) Compute the test value.
- d) Make the decision.
- e) Summarize the results.

A) --

B) a) $H_0: \mu = 4.098$, $H_a: \mu < 4.098$ claimb) $Z = -1.645$ c) $Z = -1.67$

d) Reject the Null Hypothesis

e) There is sufficient evidence to support the claim that gasoline in Texas was significantly lower than the national average.

2) A recent survey indicated that the average amount spent for breakfast by business managers was \$7.58 with a standard deviation of \$0.42. It was felt that breakfasts on the West Coast were higher than \$7.58. A sample of 81 business managers on the West Coast had an average breakfast cost of \$7.65. At $\alpha = 0.05$:

2) _____

- a) State the hypotheses and identify the claim.
- b) Find the critical value.
- c) Compute the test value.
- d) Make the decision.
- e) Summarize the results.

A) a) $H_0: \mu = 7.58$, $H_a: \mu > 7.58$ claimb) $Z = 1.645$ c) $Z = 1.50$

d) Fail to Reject the Null Hypothesis

e) There is no sufficient evidence to support the claim that breakfasts on the West Coast were higher than \$7.58

B) --

3) At a water bottling facility, a technician is testing a bottle filling machine that is supposed to deliver 1000 milliliters of water. The technician dispenses 20 samples of water and determines the volume of each sample. The 20 samples have a mean volume of $\bar{x} = 1002.1$ mL. The machine is out of calibration if the mean volume differs from 1000 mL. The technician wants to perform a hypothesis test to determine whether the machine is out of calibration. The standard deviation of the dispensed volume is known to be $\sigma = 3.5$. At $\alpha = 0.02$:

3) _____

a) State the hypotheses and identify the claim.

b) Compute the test value.

c) Find the P-value.

d) Make the decision.

e) Summarize the results.

A) a) $H_0: \mu = 1000$, $H_a: \mu \neq 1000$ claim

b) $Z = 2.68$ c) p-value: 0.0073

d) Reject the Null Hypothesis

e) There is sufficient evidence to support the claim that the machine is out of calibration.

B) --

4) The Eagle Ridge Contractors Association claims the average price of a home in their subdivision is \$525,000 with a standard deviation of \$12,500. A sample of 10 homes for sale in this subdivision had an average selling price of \$510,550. The Eagle Ridge Home Owners Association is interested in knowing if the costs of homes for sale in this subdivision are actually lower than claimed? At $\alpha = 0.05$:

4) _____

a) State the hypotheses and identify the claim.

b) Compute the test value.

c) Find the P-value.

d) Make the decision.

e) Summarize the results.

A) --

B) a) $H_0: \mu = 525,000$, $H_a: \mu < 525,000$ claim

b) $Z = -3.66$ c) p-value: 0.0001

d) Reject the Null Hypothesis

e) There is sufficient evidence to support the Home Owners Association's claim that the costs of homes for sale in this subdivision are actually lower than stated.

5) At a certain university, the average cost of books was \$370 per student last semester and the population standard deviation was \$90. This semester a sample of 40 students revealed an average cost of books of \$400 per student. The Dean of Students believes that the costs are greater this semester. At $\alpha = 0.01$: 5) _____

- a) State the hypotheses and identify the claim.
- b) Compute the test value.
- c) Find the P-value.
- d) Make the decision.
- e) Summarize the results.

A) --

B) a) $H_0: \mu = 370$, $H_a: \mu > 370$ claim

b) $Z = 2.11$ c) p-value: 0.0175

d) Fail to Reject the Null Hypothesis

e) There is no sufficient evidence to support the Dean's claim that the costs of books are greater this semester

Answer Key

Testname: PRACTICE22

- 1) B
- 2) A
- 3) A
- 4) B
- 5) B