CALIFORNIA STATISTICS · UNIT 3 · 25 QUESTIONS

Statistical Inference — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **A 95% confidence interval for a mean is (20, 30). The point estimate is**

- A 10
- B 20
- C 30
- D 25

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2 **A 95% confidence interval for a mean is (20, 30). The margin of error is**

- A 10
- B 5
- C 25
- D 2.5

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3 **Increasing sample size generally makes a confidence interval**

A unchanged

B narrower

C invalid

D wider

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4 **Increasing confidence level generally makes a confidence interval**

A invalid

B wider

C narrower

D unchanged

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5 **The standard error of a sample mean is $\sigma / \sqrt{n}$. For $\sigma = 20$, $n = 100$, it is**

- **A** 0.2
- **B** 200
- **C** 20
- **D** 2

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6 **The standard error of a sample proportion is $\sqrt{p(1-p)/n}$. For $p = 0.5$, $n = 100$, it is**

- **A** 0.5
- **B** 0.25
- **C** 0.05
- **D** 0.025

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7 **A sample proportion is 0.40 with margin of error 0.06. The 95% interval is**

- A (0.40, 0.46)
- B (0.28, 0.52)
- C (0.34, 0.46)
- D (0.34, 0.40)

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8 **A null hypothesis usually states**

- A the sample is biased
- B the result is significant
- C a large effect
- D no effect or no difference

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9 **A p-value of 0.03 at significance level 0.05 means we**

- A need no decision
- B reject the null
- C accept the null as true
- D fail to reject the null

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10 **A p-value of 0.20 at significance level 0.05 means we**

- A reject the null
- B prove the null
- C prove the alternative
- D fail to reject the null

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11 **A Type I error is**

A failing to reject a false null

B a biased sample

C rejecting a true null

D a calculation mistake

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12 **A Type II error is**

A rejecting a true null

B failing to reject a false null

C a calculation mistake

D using the wrong graph

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13 **The Central Limit Theorem says sample means become approximately normal as**

A variance grows

B sample size grows

C confidence falls

D bias grows

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14 **A test statistic measures how far a sample result is from the null value, in**

A sample size

B raw units only

C percent

D standard errors

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15 For a mean with $\bar{x} = 52$, $\mu_0 = 50$, and standard error 1, the z statistic is

- A 0.5
- B 1
- C 52
- D 2

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16 A 90% confidence interval is (100, 120). The point estimate is

- A 20
- B 110
- C 100
- D 120

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17 **A sample mean is 80 with margin of error 4. The interval is**

- **A** (72, 88)
- **B** (76, 84)
- **C** (76, 80)
- **D** (80, 84)

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18 **A 95% confidence interval for a proportion is (0.30, 0.50). The margin of error is**

ANSWER _____

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19 **The standard error for σ = 30, n = 25, is**

ANSWER _____

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20 **A sample proportion is 0.60 with margin of error 0.05. The lower end of the interval is**

ANSWER _____

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21 **For $\bar{x} = 105$, $\mu_0 = 100$, standard error 5, the z statistic is**

ANSWER _____

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22 **A confidence interval that contains the null value generally means we**

A fail to reject the null

B prove the alternative

C stop the study

D reject the null

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23

A smaller p-value gives stronger evidence

A for the null

B for bias

C against the null

D for a larger sample

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24

Random sampling is needed for inference mainly to support

A smaller p-values always

B causal claims alone

C larger graphs

D generalization to the population

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25 **The significance level α = 0.05 is the probability of a Type I error when the**

A null is false

B null is true

C sample is small

D sample is large

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ANSWER KEY

1.	D	**10.**	D	**19.**	6
2.	B	**11.**	C	**20.**	0.55
3.	B	**12.**	B	**21.**	1
4.	B	**13.**	B	**22.**	A
5.	D	**14.**	D	**23.**	C
6.	C	**15.**	D	**24.**	D
7.	C	**16.**	B	**25.**	B
8.	D	**17.**	B		
9.	B	**18.**	0.1		

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