ALBERTA STAT 151 · FULL COURSE · 50 QUESTIONS

# Full Course — 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 researcher measures the heights of 100 students chosen at random from a university. The population is**

- A All students at the university
- B The 100 students measured
- C The mean height of those measured
- D The height of one student

Understand It with Pulse | Flag a mistake

2 **A sample of 200 students has mean study time 12.5 hours. The value 12.5 is a**

A Parameter

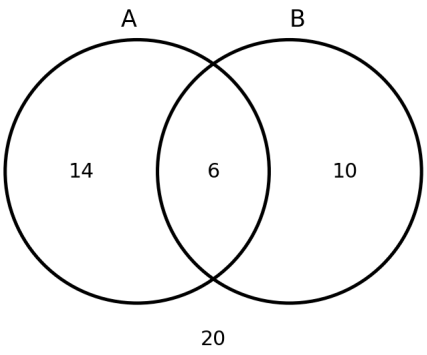
B Statistic

C Population

D Variable

Understand It with Pulse | Flag a mistake

**3** **The Venn diagram shows counts for events A and B in a survey of 50 students. The probability of A is**




- **A** 0.28
- **B** 0.40
- **C** 0.20
- **D** 0.60

Understand It with Pulse | Flag a mistake

4 **Numbers on sports jerseys are measured at the**

A Ratio level

B Interval level

C Ordinal level

D Nominal level

Understand It with Pulse | Flag a mistake

5 **An online poll that people choose to answer mainly suffers from**

A Voluntary response bias

B Random sampling

C Placebo effect

D Blinding

Understand It with Pulse | Flag a mistake

6 **To obtain a simple random sample of students, a researcher should**

- A Ask the first 50 students in a cafeteria
- B Number all students and select using random numbers
- C Select every tenth student on a list
- D Use only students who volunteer

Understand It with Pulse | Flag a mistake

7 **Researchers randomly assign volunteers to one of two diets and compare weight loss. This study is an**

- A Observational study
- B Survey
- C Experiment
- D Census

Understand It with Pulse | Flag a mistake

8 **Ice cream sales and drownings both rise in summer. The likely explanation is a**

A Direct cause

B Random sample

C Placebo

D Lurking variable

Understand It with Pulse | Flag a mistake

9 **The best display for frequencies of a categorical variable is a**

A Bar graph

B Histogram

C Scatterplot

D Boxplot

Understand It with Pulse | Flag a mistake

**10** **The graph shows five test scores in order. The mean of the five scores is**




- **A** 12
- **B** 14
- **C** 16
- **D** 13

Understand It with Pulse | Flag a mistake

**11** **The median of 5, 7, 9, 14, 20 is**

- **A** 5
- **B** 7
- **C** 9
- **D** 14

Understand It with Pulse | Flag a mistake

**12** The range of 2, 4, 4, 6, 9 is

- A 4
- B 5
- C 6
- D 7

Understand It with Pulse | Flag a mistake

**13** If the variance of a data set is 25, the standard deviation is

- A 5
- B 25
- C 125
- D 625

Understand It with Pulse | Flag a mistake

**14** **A data set has first quartile 10 and third quartile 30. The IQR is**

- A 10
- B 20
- C 30
- D 40

Understand It with Pulse | Flag a mistake

**15** **In a boxplot, the line inside the box represents the**

- A Mean
- B Mode
- C Median
- D Range

Understand It with Pulse | Flag a mistake

16 **The curve shown is a normal distribution. Its mean is**

A 70

B 80

C 90

D 60

Understand It with Pulse | Flag a mistake

17 **A correlation of r = -0.90 indicates a**

A Strong negative linear relationship

B Strong positive linear relationship

C Weak negative linear relationship

D No linear relationship

Understand It with Pulse | Flag a mistake

**18** **The least squares line is $\hat{y} = 10 + 2x$. The predicted value at $x = 5$ is**

- **A** 12
- **B** 15
- **C** 20
- **D** 25

Understand It with Pulse | Flag a mistake

**19** **For the line $\hat{y} = 10 + 2x$, the slope of 2 means that**

- **A** Predicted y is 10 when x is 0
- **B** Predicted y decreases by 2 per unit of x
- **C** The correlation is 2
- **D** Predicted y increases by 2 per unit of x

Understand It with Pulse | Flag a mistake

**20** **An observation has actual value 30 and predicted value 26. The residual is**

- A 4
- B -4
- C 26
- D 30

Understand It with Pulse | Flag a mistake

**21** **Which statement about correlation is correct**

- A Correlation proves causation
- B Correlation alone does not prove causation
- C Correlation must be between -10 and 10
- D Correlation requires categorical variables

Understand It with Pulse | Flag a mistake

22 **If P(A) = 0.30, then P(not A) is**

A 0.30

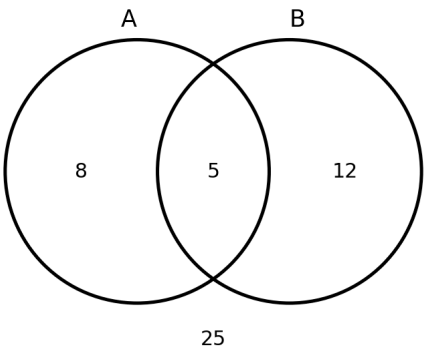
B 0.50

C 0.70

D 1.00

Understand It with Pulse | Flag a mistake

**23** **The Venn diagram shows counts for events A and B in a survey of 50 students. The probability of A and B is**




- **A** 0.10
- **B** 0.16
- **C** 0.26
- **D** 0.34

Understand It with Pulse | Flag a mistake

**24** **Independent events A and B have P(A) = 0.40 and P(B) = 0.50. Then P(A and B) is**

- A 0.20
- B 0.90
- C 0.45
- D 0.10

Understand It with Pulse | Flag a mistake

**25** **A bag has 3 red and 2 blue marbles. One is drawn at random. The probability it is red is**

- A 0.40
- B 0.60
- C 0.50
- D 0.20

Understand It with Pulse | Flag a mistake

26 **If P(A and B) = 0.12 and P(B) = 0.30, then P(A | B) is**

A 0.12

B 0.20

C 0.30

D 0.40

Understand It with Pulse | Flag a mistake

27 **A fair coin is tossed twice. The probability of at least one head is**

A 0.75

B 0.50

C 0.25

D 1.00

Understand It with Pulse | Flag a mistake

28 **If P(A) = 0.50, P(B) = 0.40, and P(A and B) = 0.20, then P(A or B) is**

A 0.90

B 0.70

C 0.20

D 0.10

Understand It with Pulse | Flag a mistake

29 **The line shown is a least squares line. The predicted value when x = 5 is**

A 15

B 18

C 20

D 25

Understand It with Pulse | Flag a mistake

**30** **Which setting follows a binomial distribution**

- A Measuring the height of a random student
- B Counting cars with no fixed number of trials
- C Rolling a die until a six appears
- D Counting heads in 10 tosses of a fair coin

Understand It with Pulse | Flag a mistake

**31** **A fair coin is tossed 3 times. The probability of exactly 2 heads is**

- A 0.375
- B 0.500
- C 0.250
- D 0.125

Understand It with Pulse | Flag a mistake

**32** **A binomial variable has n = 20 and p = 0.30. Its mean is**

- A 3
- B 6
- C 20
- D 0.30

Understand It with Pulse | Flag a mistake

**33** **Scores are normal with μ = 100 and σ = 15. The proportion below 115 is about**

- A 0.1587
- B 0.5000
- C 0.8413
- D 0.9772

Understand It with Pulse | Flag a mistake

34 **Lengths are normal with μ = 50 and σ = 10. The proportion above 70 is about**

A 0.8413

B 0.1587

C 0.4772

D 0.0228

Understand It with Pulse | Flag a mistake

35 **For a normal distribution, about what percent lies within 2 standard deviations of the mean**

A 95 percent

B 68 percent

C 99.7 percent

D 50 percent

Understand It with Pulse | Flag a mistake

**36** The normal curve shown has its peak at the centre. The median of this distribution is

- A 85
- B 100
- C 115
- D 70

Understand It with Pulse | Flag a mistake

**37** A population has $\sigma = 20$. For samples of size 100, the standard error of $\bar{x}$ is

- A 20
- B 10
- C 2
- D 200

Understand It with Pulse | Flag a mistake

**38** **The Central Limit Theorem says that for large sample size, the sampling distribution of $\bar{x}$ is approximately**

- A Uniform
- B Bimodal
- C Skewed
- D Normal

Understand It with Pulse | Flag a mistake

**39** **A sample has $\bar{x} = 100$, $\sigma = 10$, $n = 100$. A 95 percent confidence interval for $\mu$ is**

- A (98.04, 101.96)
- B (90, 110)
- C (80, 120)
- D (99, 101)

Understand It with Pulse | Flag a mistake

**40** **A 95 percent confidence interval for a mean is (20, 30). The correct interpretation is**

- **A** The probability that μ is in this interval is 0.95
- **B** We are 95 percent confident that μ is between 20 and 30
- **C** 95 percent of the data lie between 20 and 30
- **D** The sample mean is 95

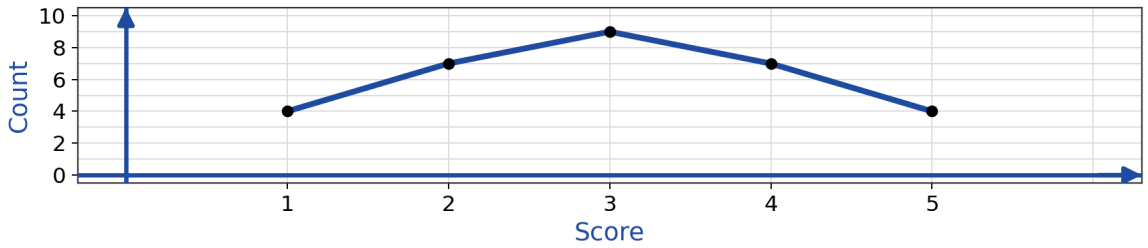
Understand It with Pulse | Flag a mistake

**41** **A sample of 100 gives $\hat{p} = 0.50$. The margin of error for a 95 percent interval is about**

- **A** 0.050
- **B** 0.025
- **C** 0.098
- **D** 0.500

Understand It with Pulse | Flag a mistake

**42** **The line graph shows counts for scores 1, 2, 3, 4 and 5. The score with the highest count is**




A 1

B 2

C 3

D 4

Understand It with Pulse | Flag a mistake

**43** **A test of $H_0 : \mu = 50$ uses $\bar{x} = 48$, $\sigma = 10$, $n = 100$. The test statistic z is**

A -2.0

B -0.2

C 2.0

D 0.2

Understand It with Pulse | Flag a mistake

**44** **A test for a proportion uses $\hat{p} = 0.60$, $p_0 = 0.50$, $n = 100$. The test statistic z is**

- **A** 0.10
- **B** 2.0
- **C** 0.50
- **D** 1.0

Understand It with Pulse | Flag a mistake

**45** **A test gives a p-value of 0.01 and $\alpha = 0.05$. The conclusion is to**

- **A** Fail to reject $H_0$
- **B** Accept $H_0$ as proven
- **C** Reject $H_0$
- **D** Increase the sample size

Understand It with Pulse | Flag a mistake

46 **A Type II error occurs when a researcher**

A Rejects a true null hypothesis

B Uses the wrong test

C Collects a biased sample

D Fails to reject a false null hypothesis

Understand It with Pulse | Flag a mistake

47 **To compare the means of two independent groups, the appropriate intro method is a**

A Two sample t procedure

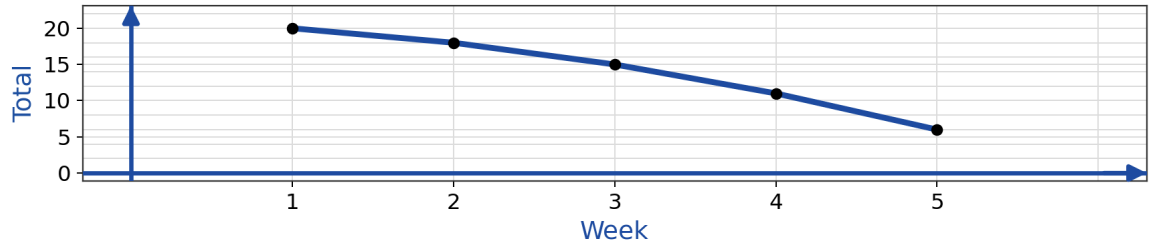
B Chi square test only

C Single proportion test only

D Scatterplot only

Understand It with Pulse | Flag a mistake

**48** **The graph shows five weekly totals in order. The largest drop between consecutive weeks is between weeks**




- **A** 1 and 2
- **B** 2 and 3
- **C** 3 and 4
- **D** 4 and 5

Understand It with Pulse | Flag a mistake

**49** **Analysis of variance is mainly used to compare**

- **A** Two categorical variables
- **B** One sample proportion to a value
- **C** Means across three or more groups
- **D** Two paired measurements only

Understand It with Pulse | Flag a mistake

**50** **Using $\hat{p} = 0.50$ and $z = 1.96$, the sample size needed for a margin of error of 0.05 is about**

- **A** 97
- **B** 196
- **C** 1067
- **D** 385

Understand It with Pulse | Flag a mistake

# ANSWER KEY

1. A
2. B
3. B
4. D
5. A
6. B
7. C
8. D
9. A
10. B
11. C
12. D
13. A
14. B
15. C
16. B
17. A
18. C
19. D
20. A
21. B
22. C
23. A
24. A
25. B
26. D
27. A
28. B
29. C
30. D
31. A
32. B
33. C
34. D
35. A
36. B
37. C
38. D
39. A
40. B
41. C
42. C
43. A
44. B
45. C
46. D
47. A
48. D
49. C
50. D

© 2026 Brett Robbins. All Rights Reserved.