

AP Statistics · Inference for Means · Test

Common Core AP Statistics Unit 4 (2026-27) · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This ap statistics means test checks inference for means in 45 minutes, with 9 questions for a total of 20 points.

Answer all nine questions in 45 minutes. Show hypotheses, conditions, calculations and conclusions in context, as on the free-response section of the AP exam. A calculator is allowed. The test is worth 20 points.

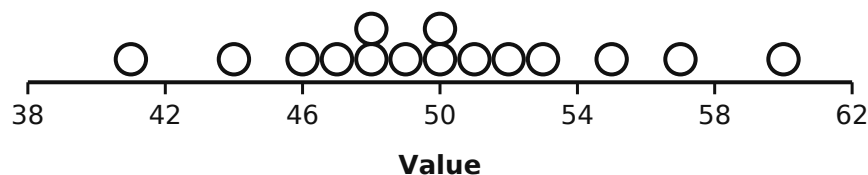
Test information

- **Grade:** AP Statistics
- **Chapter:** Inference for Means
- **Common Core:** AP Statistics Unit 4 (2026-27)
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 3 pts; Question 3: 3 pts; Question 4: 2 pts; Question 5: 3 pts; Question 6: 3 pts; Question 7: 2 pts; Question 8: 1 pt; Question 9: 1 pt)

AP Statistics Means Test: questions 1-5

Question 1: Checking conditions (2 points)

A random sample of 15 values (a small part of a large population) is shown. An analyst wants to build a t interval for the population mean. Decide whether the conditions for the interval are satisfied and justify the answer.



Fifteen randomly selected values.

Question 2: Interval for one mean (3 points)

A random sample of 9 sealed jars of honey from a large production run has weights (pounds) 3.4, 3.8, 3.1, 3.6, 3.9, 3.3, 3.5, 3.7, 3.2. A dot plot shows no outliers or strong skewness.

- Construct a 95% confidence interval for the mean weight of all jars. (2 points)
- Interpret the interval in context. (1 point)

Question 3: Significance test for one mean (3 points)

A cafe claims that its cold-brew cups hold a mean of 12.5 ounces. Aisha suspects the cups hold less. She measures a random sample of 20 cups (a small part of the cafe's output) and finds $\bar{x} = 11.4$ ounces and $s = 2.4$ ounces. A graph shows no strong skewness or outliers. Do the data provide convincing evidence that the mean is less than 12.5 ounces? Use $\alpha = 0.05$.

Question 4: Claim and confidence interval (2 points)

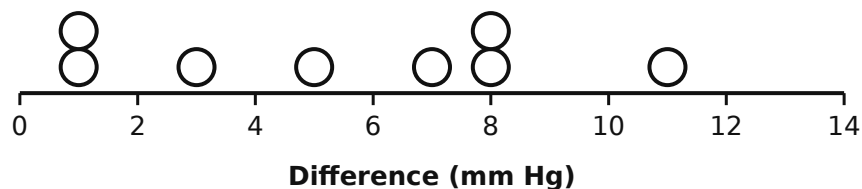
A company claims its batteries last a mean of 40 hours. A 95% confidence interval for the true mean, computed from a random sample, is (36.2, 39.4) hours.

- Does the interval provide convincing evidence that the mean is not 40 hours? Justify the answer. (1 point)
- Would a two-sided test of $H_0: \mu = 38$ at $\alpha = 0.05$ reject H_0 ? Explain. (1 point)

Question 5: Paired data (3 points)

Eight randomly selected patients have their systolic blood pressure (mm Hg) measured before and after a month of a new diet. The data and a dot plot of the differences (before minus after) are shown. Do the data provide convincing evidence that the diet lowers mean blood pressure? Use $\alpha = 0.05$.

Patient	1	2	3	4	5	6	7	8
Before	112	98	125	104	131	109	118	101
After	105	95	117	103	120	104	110	100



Differences (before minus after) in mm Hg.

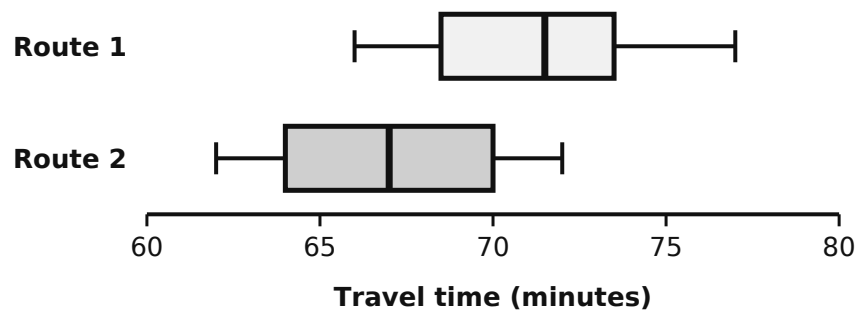
AP Statistics Means Test: questions 6-9

Question 6: Two independent means (3 points)

Noah randomly chooses a route to school on each of 23 mornings: 12 times Route 1 and 11 times Route 2. His travel times (minutes) are shown in the box plots.

Route 1: 68, 72, 75, 70, 66, 74, 71, 69, 73, 77, 67, 72

Route 2: 64, 70, 67, 63, 69, 66, 72, 65, 68, 62, 71



Travel times (minutes) on two routes.

Do the data provide convincing evidence of a difference in the mean travel times of the two routes? Use $\alpha = 0.05$.

Question 7: Choosing a procedure (2 points)

Name the appropriate inference procedure for each situation. Do not carry out the procedure.

- A random sample of 40 adults is asked whether they own an e-reader; the goal is to estimate the proportion of all adults who do. (1 point)
- The same 15 customers are timed at self-checkout and at a staffed lane in random order; the goal is to compare mean times. (1 point)

Question 8: t versus z (1 point)

For a 95% confidence level and a sample of size 12, explain why the critical value t^* is larger than $z^* = 1.960$.

Question 9: Sample size and interval width (1 point)

Two random samples from the same population have the same mean and the same standard deviation, with $n = 16$ and $n = 64$. Which 95% t interval for the mean is narrower, and why?

How to use this ap statistics means test

Take this ap statistics means test without notes, then grade it with the test answer key out of

20 points.

