

AP Statistics - t Intervals and t Tests for a Mean - Test

Common Core AP STAT 7.1, AP STAT 7.2, AP STAT 7.3, AP STAT 7.4, AP STAT 7.5, HSS-IC.B.4 · maths-pdf.fr/en/

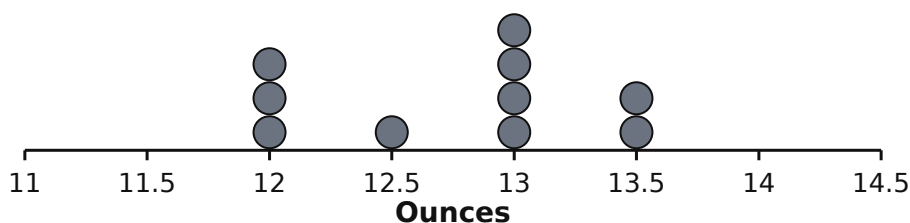
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test covers the t distribution, one-sample t intervals and tests, and matched pairs. Follow State, Plan, Do, Conclude and write each conclusion in context.

About this test

- Grade: AP Statistics
- Chapter: t Intervals and t Tests for a Mean
- Standards: AP STAT 7.1, AP STAT 7.2, AP STAT 7.3, AP STAT 7.4, AP STAT 7.5, HSS-IC.B.4
- Time: 45 minutes
- Total: 20 points

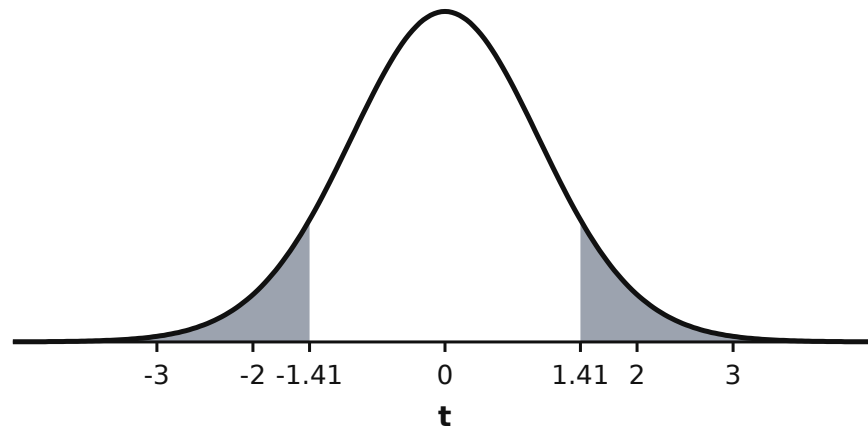
Question 1 - t interval [4 pts]



Weights of 10 packages (rounded to 0.5).

The weights (oz) of 10 randomly selected packages are 12.1, 13.4, 11.8, 12.9, 13.0, 12.5, 13.7, 12.2, 12.8, 13.1. (a) Check the conditions using the graph. (1 point) (b) Construct a 95% confidence interval for the mean weight. (2 points) (c) Interpret. (1 point)

Question 2 - t test [4 pts]



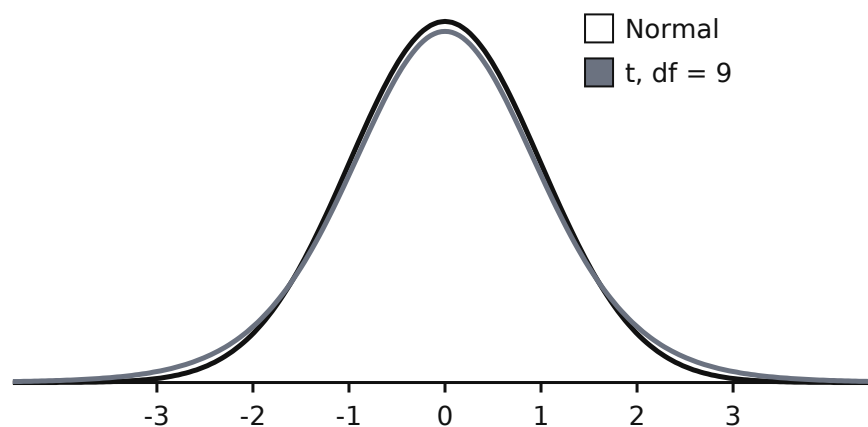
Two-sided p-value.

A random sample of 32 commuters has mean travel time 15.8 minutes with $s = 3.2$ minutes. Test whether the true mean differs from 15 minutes at $\alpha = 0.05$. (*State 1, Plan 1, Do 1, Conclude 1*)

Question 3 - Matched pairs setup [2 pts]

Each of 20 students is timed on a puzzle with and without background music. Explain why a matched pairs procedure is appropriate and what the parameter is.

Question 4 - t^* and z^* [2 pts]



Normal and t.

Why is the critical value t^* larger than z^* for the same confidence level when $n = 10$? What happens as n increases?

Question 5 - Effect of changes [2 pts]

For a t interval, describe the effect on the margin of error of (a) increasing n, (b) raising the confidence level. (1 point each)

Question 6 - Conditions [2 pts]

Is a one-sample t procedure appropriate? (a) random sample of 12 with a dotplot that has one extreme outlier; (b) random sample of 45 with moderate right skew. (1 point each)

Question 7 - Interpret the p-value [2 pts]

A t test of $H_0: \mu = 20$ versus $H_a: \mu > 20$ gives a p-value of 0.03. Interpret the p-value in context, where μ is the mean time (in minutes) to finish a quiz.

Question 8 - Degrees of freedom [2 pts]

A random sample of 18 students is used for a t interval. Give df and the 95% critical value t^* .