Answers: Hypothesis Tests

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Summary

Answers to questions relating to the guide on Hypothesis tests.

These are the answers to Questions: Hypothesis tests.

Please attempt the questions before reading these answers!

Defining hypotheses

1. $H_0 : \mu = 350$ $H_1 : \mu < 350$
2. $H_0 : p = 0.1$ $H_1 : p > 0.1$
3. $H_0 : \mu_a = \mu_b$ $H_1 : \mu_a \neq \mu_b$
4. $H_0 : \mu_r = \mu_x$ $H_1 : \mu_r > \mu_x$

Significance levels

5. $\alpha = 0.15$
6. $\alpha = 0.01$

Test selection

7. Paired t-test

Critical values and conclusions

8. I reject H_0 as the test statistic of 3.12 is greater than the critical value of 2.58. Therefore there is significant evidence to suggest the average daily sales of Boole Bars differ from 150.
9. I reject H_0 as the test statistic of 2.01 is greater than the critical value of 1.645. Therefore there is significant evidence to suggest the proportion of customers who buy Lagrangian Lollipops exceeds 40%.

10. I do not reject H_0 as the test statistic of 2.102 is between the critical values of 2.306 and -2.306. Therefore there is no significant evidence to suggest there is a difference in sweetness scores between the two recipes.

Version history and licensing

v1.0: initial version created 12/24 by ect6 (as part of a University of St Andrews VIP project)