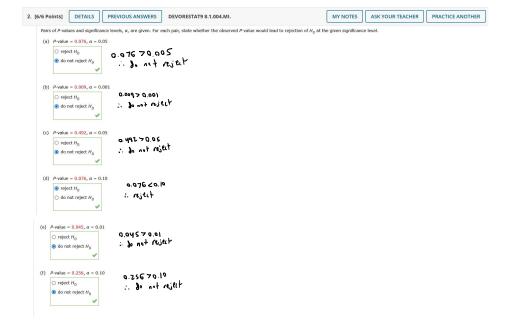
Ch8 - Tests of Hypotheses Based on a Single Sample

The asserted value in H₀ should not appear in H_a, so these hypotheses are not in con

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Topi

8.1 Hypotheses and Test Procedures

Test Procedures and P-Values
Errors in Hypothesis Testing

Some Further Comments on the P-Value

Exercises Section 8.1 (1–14)

8.2 z Tests for Hypotheses about a Population Mean

A Normal Population Distribution with Known σ

Large-Sample Tests

Exercises Section 8.2 (15-28)

8.3 The One-Sample t Test

β.and Sample Size Determination
Variation in P-values

8.4 Tests Concerning a Population Proportion

Large-Sample Tests Small-Sample Tests

Small-Sample Tests

Exercises Section 8.4 (42–52)

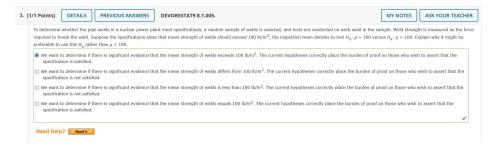
8.5 Further Aspects of Hypothesis Testing

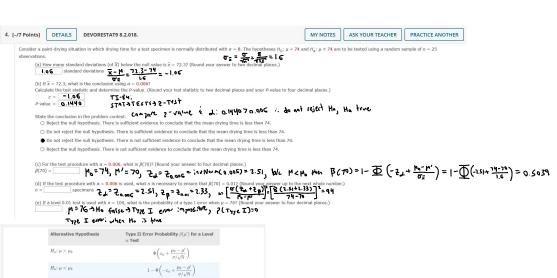
Statistical versus Practical Significance

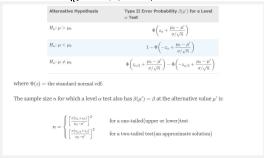
The Relationship between Confidence Intervals and Hypothesis Tests

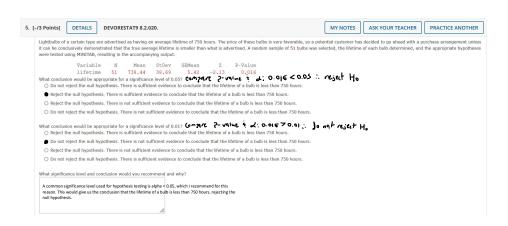
Simultaneous Testing of Several Hypotheses

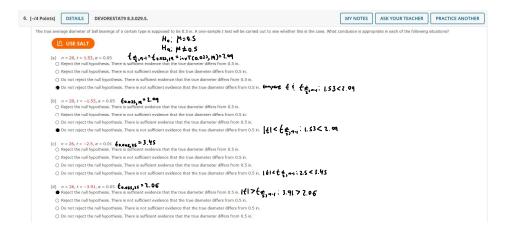
The Likelihood Ratio Principle

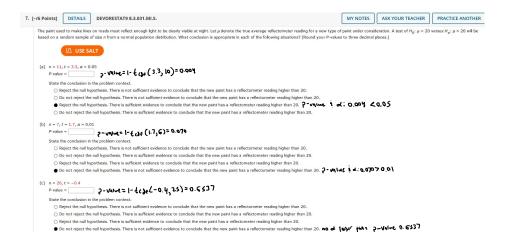


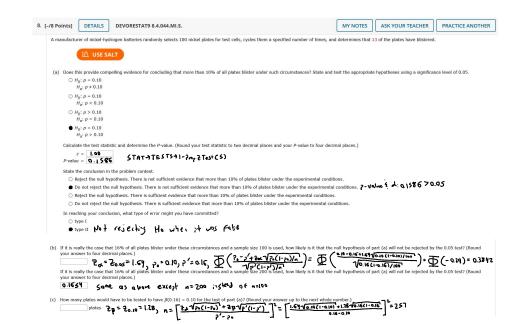


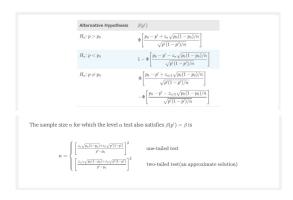


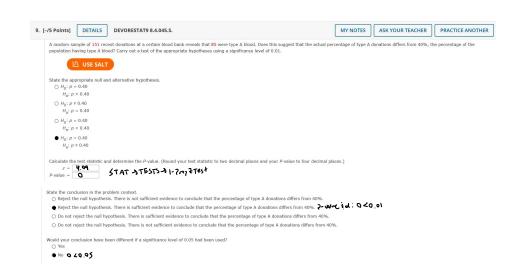












10. [-/7 Points] DETAILS DEVORESTAT9 8.5.053.MI. MY NOTES ASK YOUR TEACHER PRACTICE ANOTHER The drying time of a certain type of paint under specified test conditions is known to be normally distributed with mean value 75 min and standard deviation 9 min. Chemists have proposed a new additive designed to decrease average drying time. It is believed that driving times with this additive will rearn an ormally distributed with $\sigma = 9$. Because of the expense associated with the additive, evidence should strongly suggest an improvement in average drying time before such a conclusion as depoted, Let ρ denote the true average driving time when the additive is used. This appropriate hypotheses are $\rho(x) = 1/2$ with $\rho(x) = 1/2$ with $\rho(x) = 1/2$ which in the context of the problem would presumably not be a practically significant department from $\rho(x) = 1/2$ with $\rho(x) = 1/2$ and $\rho(x) = 1/2$ which in the context of the problem would presumably not be a practically significant department from $\rho(x) = 1/2$ with $\rho(x) = 1/2$ and $\rho(x) = 1/2$ (a) For a level 0.01 test, compute β at this alternative for sample sizes n = 64, - B(1) = B(74) = 1- 車(-2++ 10-11)=1-車(-23+ 25-74)

64 0.9252 784 0.2174 2,500 0.9096

(b) If the observed value of X is $\bar{X} = 74$, what can you say about the resulting P-value when n = 2,5007 is the data statistically significant at any of the standard values of a? (Round your z to two decimal places. Round your P-value to four decimal places.) STATOTENTS O Z-Test

z -5.56
P-value 0

State the conclusion in the problem contex

- ate the conclusion in the problem context.

 O not reject the unlilyopothesis. The data are not statistically significant at any standard value of a.

 Reject the null hypothesis. The data are not statistically significant at any standard value of a.

 O not reject the null hypothesis. The data are statistically significant at any standard value of a.

 Reject the null hypothesis. The data are statistically significant at any standard value of a.
- (c) Would you really want to use a sample size of 2,500 along with a level 0.01 test (disregarding the cost of such an experiment)? Explain
- O Yes, even when the departure from H_0 is insignificant from a practical point of view, a statistically significant result is highly likely to appear; it is difficult for the test to detect departures from H_0 .

 O Yes, R is always advantageous to have a very large sample size, because it will detect very small departures from H_0 .

 O Yes, R is always advantageous to have a very large sample size, because it will detect very small departures from H_0 .

 O No, even when the departure from H_0 is insignificant from a practical point of view, a statistically significant result is highly likely to appear; the test is too likely to detect small departures from H_0 .

 - No, it is never advantageous to have a very large sample size, because it cannot detect very small departures from H₀

