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LESSON 19 - SIGN TEST

In this lesson we will learn how to use Minitab to do a sign test. We will use Problem 3 on page 618 as an example. We will use the P-value method, but since the text tells us to use a 1% level of significance, we will write a decision and conclusion.

Open Minitab and clear everything below the date/time stamp. Type your name, Lesson 19 and Example on separate lines. Define the variable, X = amount of a new credit card charge for the previous month. Enter the data into C1, label the column and display the data. Now click on **Stat > Nonparametrics > 1-Sample Sign**. Select C1 into the "Variables:" box, click on the button for "Test median", type 300 into that box, then change the "Alternative:" to "greater than" and click "OK". The results, along with the decision and conclusion that we must write, are shown in the figure below.

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Lesson 19
Example

X = amount of a new credit card charge for the previous month

Data Display

Charge

346.71	382.59	255.03	202.17	309.80	265.88	299.41	270.83
296.54	316.46	245.92	309.47				

Sign Test for Median: Charge

Sign test of median = 300.0 versus > 300.0

	N	Below	Equal	Above	P	Median
Charge	12	7	0	5	0.8062	298.0

Decision: Since the P-value = 0.8062 > 0.01, we fail to reject H₀.

Conclusion: There is insufficient evidence at the 1% level of significance to support the claim that the median amount of new credit card charges for the previous month was more than \$300.

Notice that if we had chosen to use the classical approach, the number of plus signs would be given by what Minitab has labeled "Above", 5 in this case. If we had chosen to use the classical method, our critical value for the number of +'s would have been 1 (see Table 8 in our text).

MINITAB ASSIGNMENT 19

See instructions on page 8.

1. Podunk University claims that their median class size is no greater than 25. A group of students believe that the median is greater than that. The data below represents class sizes of a random sample of 15 classes at PU. Enter and display this data. Using the P-value method and a 10% level of significance, what conclusion can the students draw from this data?

32 19 26 25 28 21 29 22 27 28 26 23 26 28 29

2. Do Problem 6 on page 618. Enter and display the data. Using the P-value method, what conclusion can the meteorologist draw from this data? Type your answer in the session window.

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