Name: _____ Hour: _____ Date: _____

Are you getting enough sleep?

It's recommended that teenagers get 8 hours of sleep a night. Mrs. Gallas believes her AP Stats students are getting less than the recommended 8 hours of sleep per night. To test her belief, take a random sample of 10 students in class and record the number of hours of sleep for each. Do these data provide convincing evidence that the AP stats students get less than 8 hours of sleep per night using α = 0.05?

1. Calculate the sample mean and standard deviation.

2. State the appropriate hypotheses for a significance test. Be sure to define the parameter of interest.

3. What conditions must be met? Check them.

4. Give the formulas for the mean and standard deviation of the sampling distribution of $\bar{x}$ and calculate the values.

5. Draw a picture and then calculate the test statistic.

6. Remember, since we are working with means, the test statistic is a *t* value. Use table B to find the P-value.

7. What conclusion can we make?

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Significance Test for μ

Important ideas:

Check Your Understanding

According to the AAA Foundation for Traffic Safety's American Driving Survey, U.S. drivers spend, on average, 51 minutes behind the wheel each day. A researcher believes this is an overstatement. To investigate, a random sample of 75 drivers were selected. The study revealed that the mean time behind the wheel for the sample of 75 drivers was 46.4 minutes with a standard deviation of 18.8 minutes. Is there convincing evidence that the mean time behind the wheel for all U.S. drivers is less than 51 minutes? Use α = 0.01.

State: Parameter: Statistic:

      Hypotheses: α Level:

Plan: Name of procedure:

      Check conditions:

Do: General: Picture:

      Specific:

      Work: Test Statistic:

                                                P-value:

Conclude:

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