

1. Suppose that the population of the scores of all high school seniors who took the SAT-V (SAT verbal) test this year follows a normal distribution with mean $\mu = 480$ and standard deviation $\sigma = 90$. You read a report that claims that 10,000 students who took part in a national program for improving one's SAT-V score had significantly better scores (at the 0.05 level of significance) than the population as a whole. In order to determine if the improvement is of practical significance, one should

- A. find out the actual mean score of the 10,000 students.
 - B. find out the actual P-value.
 - C. use a two-sided test rather than the one-sided test implied by the report.
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2. Does taking garlic tablets twice a day provide significant health benefits? To investigate this issue, a researcher conducted a study with fifty adult subjects who took garlic tablets twice a day for a period of six months. At the end of the study, 100 variables related to the health of the subjects were measured on each subject and the means compared to known means for these variables in the population of all adults. Four of these variables were significantly better (in the sense of statistical significance) at the 5% level for the group taking the garlic tablets as compared to the population as a whole, and one variable was significantly better at the 1% level for the group taking the garlic tablets as compared to the population as a whole. It would be correct to conclude

- A. that there is good statistical evidence that taking garlic tablets twice a day provides some health benefits.
 - B. that there is good statistical evidence that taking garlic tablets twice a day provides benefits for the variable that was significant at the 1% level. We should be somewhat cautious about making claims for the variables that were significant at the 5% level.
 - C. None of the above.
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3. A radio station wants to know if residents in their area are in favor of a proposed tax increase. They invite listeners to call in to respond to the poll. 645 of the 800 who responded were against the tax. The station calculated a 95% confidence interval and declared "Between 77.9% and 83.4% of residents oppose the new tax."

- A. This is a valid interval, so the station must be right.
 - B. We can't say for certain that between 77.9% and 83.4% of residents oppose the new tax because it is a 95% confidence interval.
 - C. Because of the way the poll was conducted, the results are invalid.
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4. An instructor wanted to construct a confidence interval for the mean GPA of the students in his class. He used the campus records system to obtain all their GPA's and computed the 95% interval as (2.32, 2.87). If he wants to use this interval to describe the students in his class

- A. he's 95% confident the interval contains the real average GPA.
- B. there's a 5% chance the interval is wrong.
- C. he didn't need an interval after all.

