Problem Set 10

1

0.0/2.0 points (graded)

Which of the following will **increase** the length of the confidence interval?

- [ ] Increase confidence level
- [ ] Decrease confidence level
- [ ] Increase sample size
- [ ] Decrease sample size

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2

0.0/1.0 point (graded)

The standard deviation of the diameter of rivet heads manufactured by a factory is estimated to be 0.15mm. Given a sample with size 50 and sample mean 18.45mm, what is the upper limit of the confidence interval of the distribution mean with confidence level 98%?

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3

0.0/2.0 points (graded)

One- and two-sided tests

We know the male students' height is approximately normal, and has standard deviation 4 inches. In a sample of 10 male students, the mean height is 68 inches. Calculate the p value corresponding to the following null hypotheses.

- H_0 **:** The average height of male students in this college is 70 inches.

H_1 **:** The average height of male students in this college is **not** 70 inches.

- H_0 **:** The average height of male students in this college is **at least** 70 inches.

H_1 **:** The average height of male students in this college **less than** 70 inches.

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4

0.0/1.0 point (graded)

The null hypothesis says that a sprinter's reaction time follows a normal distribution with mean **at most** 0.150 seconds. Six measurements of a sprinter's reaction time show 0.152, 0.154, 0.166, 0.147, 0.161, and 0.159 seconds. What is the p value?

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5

0.0/1.0 point (graded)

A psychologist estimates the standard deviation of a driver's reaction time to be 0.05 seconds. How large a sample of measurements must be taken to derive a confidence interval for the mean with margin of error at most 0.01 second, and confidence level 95%?

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