

CI FOR MEAN

TEXT: 8.2

LAST NAME	FIRST NAME	DATE
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1 (4 points). A hospital is trying to cut down on emergency room wait times. It is interested in the amount of time patients must wait before being called back to be examined. An investigation committee randomly surveyed 7 patients and their waiting times (in minutes) were recorded:

50, 81, 40, 43, 91, 49, 114

(a) Describe the approximate distribution of the statistic:

$$\frac{\bar{x} - \mu}{s/\sqrt{n}} \sim$$

(b) Find the point estimate for the population mean waiting time.

(c) Construct a 93% confidence interval for the population mean time spent waiting.

(d) What is the margin of error for this interval?

(e) Find the minimal sample size required for computing a 99% confidence interval with the margin of error of 5 minutes.

2 (5 points). In a sample of 812 Web ad banners, the mean width is 683 pixels and the standard deviation of the width is 86 pixels. Find a 99.5% confidence interval for the population mean width of a Web ad banner.

(a) What is the error rate α for this interval?

(b) What is the corresponding critical value of the t distribution $t_{\alpha/2, n-1}$?

(c) What is the margin of error for this interval?

(d) State the confidence interval for the population mean.

(e) Find the minimal sample size required to create a 90% confidence interval for the population mean, if the desired margin of error is 100 pixels.

3 (1 point). If we increase the sample size, while keeping the margin of error the same as before, what will happen to the confidence level of our interval estimate of the population mean?

(a) The confidence will stay the same.

(b) The confidence will increase.

(c) The confidence will decrease.