ISE 2211 Statistics for Engineers

Homework #6 - Chapters 7 and 8 (Montgomery & Runger, 6ed)

Parameter Estimation

Reading Assignment Read pages 239 - 241

Problems

1. Forty-nine one-pound cartons of margarine were analyzed to determine the polyunsaturated fat content. The sample average was 11.65 ounces, with standard deviation of 0.39 ounces.
Estimate the population mean (95% and 99% confidence level).

Answers: 95% $u = 11.65 \pm 0.11$ equivalently $11.54 < u < 11.76$
99% $u = 11.65 \pm 0.14$ equivalently $11.51 < u < 11.79$

2. An independent test agency tested 100 light bulbs and found the average operating time to be 1570 hours with a standard deviation of 120 hours.
Estimate the population mean (95% and 99% confidence level).

Answers: 95% $u = 1570 \pm 23.5$ equivalently $1546 < u < 1594$
99% $u = 1570 \pm 31.0$ equivalently $1539 < u < 1601$

3. A random sample of 25 reportedly healthy adult body temperatures were found to average 98.2 with a standard deviation 0.69 degrees Fahrenheit.
Estimate the population mean at the 95% confidence level.
Note: Use *t* Distribution

Answers: 95% $u = 98.2 \pm 0.28$ equivalently $97.9 < u < 98.5$

Confidence Intervals

Reading Assignment Pages 241 - 249 and Pages 271 - 299

Problems

Pages 245 - 247	Examples 7-1, 7-2, 7-3
Page 248	#7-3; 7-5; 7-7; 7-9
Page 281	#8-13; 8-15
Page 286	#8-39 b,c; 8-41 b,c
Pages 292 - 294	Examples 8-8, 8-9
Page 295	#8-59; 8-65