CANS109	CANS111
270	287
273	216
258	260
204	291
254	210
228	272
282	260
278	294
201	253
264	292
265	280
223	262
274	295
230	230
250	283
275	255
281	295
271	271
263	268
277	225
275	246
278	297
260	302
262	282
273	310
274	305
286	306
236	262
290	222
286	276
278	270
283	280

As cans are manufactured, they must be sampled and tested to ensure axial strength. Download the Excel file "CAN DATA DOWNLOAD" located at: http://www.markeredwards.com/APStats/APStats.html which shows two sets of data for cans having two different wall thicknesses. A **partial** list of this data is shown to the right.

Analyze this data:

1. To create histograms with the CDF (Cumulative Distribution Function) on a secondary y-axis. View a typical (minimum) solution on the next page.
2. With the 109 and 111 data separately.
3. Include an additional analysis of the 111 data without any outliers.
4. Select the bin (category) widths appropriately to provide sufficiently resolution to determine the shape for each histogram.
5. Using your analysis, identify Q1, Q2, Q3.
6. Determine if any outliers can be omitted because they exceed the 1.5 IQR rule.
7. Write a brief summary of each data set addressing shape, center of the data, variation of the data, skewness, and outliers. Use of a table for this analysis is recommended.

Present your analysis in MS Word format with the following file name: LastName-CanLab.docx (Word will add the suffix automatically. Submit your MS Word and the supporting Excel file as email attachments to: mheinen_1@msn.com no later than midnight _____.

For an example of an adequately formatted paper, view Player Lab by Heinen.PDF at http://www.markeredwards.com/stats/stats.html.

	B	C
Max	297	317
Min	200	205
Range	97	112

Axial Load Measurements

Bins	Can Wall Thicknesses		With 504
	0.0109 in	0.0111 in	0.0111 in
200	270	287	287
210	273	216	216
220	258	260	260
230	204	291	291
240	254	210	210
250	228	272	272
260	282	260	260
270	278	294	294
280	201	253	253
290	264	292	292
300	265	280	280
310	223	262	262
320	274	295	295
	230	230	230
	250	283	283
	275	255	255
	281	295	295
	271	271	271
	263	268	268
	277	225	225
	275	246	246
	278	297	297
	260	302	302
	262	282	282
	273	310	310
	274	305	305
	286	306	306
	236	262	262
	290	222	222
	286	276	276
	278	270	270
	283	280	280
	262	288	288
	277	296	296
	295	281	281
	274	300	300
	272	290	290
	265	284	284
	275	304	304
	263	291	291
	251	277	277
	289	317	317
	242	292	292
	284	215	215
	241	297	297

Did not create bins past 320

0.0109 in — Descriptive Statistics

Mean	267.11
Standard Error = $\sigma/(n)^{0.5}$	1.67
Median	273.00
Mode	268.00
Standard Deviation	22.11
Sample Variance	488.95
Kurtosis	1.68
Skewness	-1.48
Range	97.00
Minimum	200.00
Maximum	297.00
Sum	46745.00
Count	175.00

0.0109 in

Force (lbf)	Freq	Cum.%
200	1	0.6%
210	8	5.1%
220	4	7.4%
230	6	10.9%
240	2	12.0%
250	5	14.9%
260	14	22.9%
270	39	45.1%
280	47	72.0%
290	38	93.7%
300	11	100.0%
310	0	100.0%
320	0	100.0%
More	0	100.0%

0.0111 in w/504 — Descriptive Statistics

Mean	281.81
Standard Error	2.10
Median	285.00
Mode	284.00
Standard Dev	27.77
Sample Variance	771.43
Kurtosis	23.57
Skewness	2.17
Range	299.00
Minimum	205.00
Maximum	504.00
Sum	49316.00
Count	175.00

0.0111 in w/ 504

Bins	Freq	Cum.%
200	0	0.0%
210	3	1.7%
220	3	3.4%
230	4	5.7%
240	1	6.3%
250	7	10.3%
260	7	14.3%
270	12	21.1%
280	25	35.4%
290	56	67.4%
300	32	85.7%
310	19	96.6%
320	5	99.4%
More	1	100.0%

0.0111 in w/o 504 — Descriptive Statistics

Mean	280.53
Standard Error	1.68
Median	285.00
Mode	284.00
Standard Deviation	22.11
Sample Variance	488.87
Kurtosis	2.24
Skewness	-1.42
Range	112.00
Minimum	205.00
Maximum	317.00
Sum	48812.00
Count	174.00

0.0111 in w/o 504

Force (lbf)	Freq	Cum.%
200	0	0.0%
210	3	1.7%
220	3	3.4%
230	4	5.7%
240	1	6.3%
250	7	10.3%
260	7	14.4%
270	12	21.3%
280	25	35.6%
290	56	67.8%
300	32	86.2%
310	19	97.1%
320	5	100.0%
More	0	100.0%

0.0109 Histogram — Frequency / Cumulative %, Force (lbf). Bar values: 1, 8, 4, 6, 2, 5, 14, 39, 47, 38, 11, 0, 0, 0.

0.0111 with 504 Histogram — Frequency / Cumulative %, Force (lbs). Bar values: 0, 3, 3, 4, 1, 7, 7, 12, 25, 56, 32, 19, 5, 1.

0.0111 w/o 504 Histogram — Frequency / Cumulative %, Force (lbf). Bar values: 0, 3, 3, 4, 1, 7, 7, 12, 25, 56, 32, 19, 5, 0.