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1: > #This script was used to do the problems on
2: > #   a particular worksheet9
3: > #####
4: > ## C A S E:  1  ##
5: > #####
6: > s_1 <- 19.00 # sample standard deviation
7: > c_level <- 0.810 # set the confidence level
8: > n_1 <- 38 # set the desired margin of error
9: >
10: > df <- n_1 - 1;
11: > # we can do this the long way
12: > df
13: [1] 37
14: > alpha <- 1 - c_level
15: > lval <- qchisq( alpha/2, df )
16: > lval
17: [1] 26.29309
18: > rval <- qchisq( alpha/2, df, lower.tail=FALSE)
19: > rval
20: [1] 48.66238
21: > ci_low <- sqrt( df*s_1*s_1/rval )
22: > ci_high <- sqrt( df*s_1*s_1/lval )
23: > ci_low
24: [1] 16.56753
25: > ci_high
26: [1] 22.53895
27: > # or we can do it the short way
28: > source("../ci_stddev.R") #load the function
29: > ci_stddev(n_1, s_1, c_level )
30:          CI Low          CI High deg. of freedom      left chisq
31:          16.56753          22.53895          37.00000          26.29309
32:          right chisq
33:          48.66238
34: > #
35: >
36: > #####
37: > ## C A S E:  2  ##
38: > #####
39: > s_1 <- 55.5 # sample standard deviation
40: > c_level <- 0.860 # set the confidence level
41: > n_1 <- 27 # set the desired margin of error
42: >
43: > df <- n_1 - 1;
44: > df
45: [1] 26
46: > ci_stddev(n_1, s_1, c_level )
47:          CI Low          CI High deg. of freedom      left chisq
48:          46.32716          70.20273          26.00000          16.24992
49:          right chisq
50:          37.31538
51: > #
52: >
53: > #####
54: > ## C A S E:  3  ##
55: > #####
56: > s_1 <- 16.5 # sample standard deviation
57: > c_level <- 0.990 # set the confidence level
58: > n_1 <- 109 # set the desired margin of error
59: >
60: > df <- n_1 - 1;

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61: > df
62: [1] 108
63: > ci_stddev(n_1, s_1, c_level )
64:           CI Low           CI High deg. of freedom       left chisq
65:           14.01945           19.94697           108.00000           73.89888
66:           right chisq
67:           149.59938
68: > #
69: >
70: >
71: > #####
72: > ## C A S E:  4  ##
73: > #####
74: >
75: > source("../gnrnd4.R")
76: > gnrnd4(1517043204,4000437) # generate the sample
77: style= 4   size= 33   seed= 51704   num digits= 1   alt_sign= 1
78: [1] "DONE "
79: > head( L1 )
80: [1] 48.4 40.1 41.6 50.6 37.3 43.3
81: > tail(L1)
82: [1] 37.1 48.1 37.3 39.1 34.7 36.9
83: > s_1 <- sd( L1 )           # sample standard deviation
84: > s_1
85: [1] 4.457586
86: > c_level <- 0.930         # set the confidence level
87: > n_1 <- length( L1 )      # set the sample size
88: > n_1
89: [1] 33
90: >
91: > df <- n_1 - 1;
92: > # we can do this the long way
93: > df
94: [1] 32
95: > alpha <- 1 - c_level
96: > lval <- qchisq( alpha/2, df )
97: > lval
98: [1] 19.11329
99: > rval <- qchisq( alpha/2, df, lower.tail=FALSE)
100: > rval
101: [1] 47.91831
102: > ci_low <- sqrt( df*s_1*s_1/rval )
103: > ci_high <- sqrt( df*s_1*s_1/lval )
104: > ci_low
105: [1] 3.642705
106: > ci_high
107: [1] 5.767757
108: > # or we can do it the short way
109: >
110: > ci_stddev(n_1, s_1, c_level )
111:           CI Low           CI High deg. of freedom       left chisq
112:           3.642705           5.767757           32.00000           19.113294
113:           right chisq
114:           47.918307
115: > #
116: > #####
117: > ## C A S E:  5  ##
118: > #####
119: >
120: > source("../gnrnd4.R")

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121: > gnrnd4(1197084904,4500468) # generate the sample
122: style= 4 size= 50 seed= 19708 num digits= 1 alt_sign= 1
123: [1] "DONE "
124: > head( L1 )
125: [1] 49.7 40.9 47.9 39.4 45.8 55.2
126: > tail(L1)
127: [1] 42.7 49.0 51.9 38.3 51.0 46.4
128: > s_1 <- sd( L1 ) # sample standard deviation
129: > s_1
130: [1] 4.102675
131: > c_level <- 0.830 # set the confidence level
132: > n_1 <- length( L1 ) # set the sample size
133: > n_1
134: [1] 50
135: >
136: > df <- n_1 - 1;
137: >
138: > ci_stddev(n_1, s_1, c_level )
139: CI Low CI High deg. of freedom left chisq
140: 3.615546 4.780981 49.000000 36.082457
141: right chisq
142: 63.093190
143: > #
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