```
> #This script was used to do the problems on
> #   a particular worksheet9
> ##################
> ## C A S E:  1  ##
> ##################
> s_1 <- 19.00   # sample standard deviation
> c_level <- 0.810 # set the confidence level
> n_1 <- 38     # set the desired margin of error
>
> df <- n_1 - 1;
> # we can do this the long way
> df
[1] 37
> alpha <- 1 - c_level
> lval <- qchisq( alpha/2, df )
> lval
[1] 26.29309
> rval <- qchisq( alpha/2, df, lower.tail=FALSE)
> rval
[1] 48.66238
> ci_low  <- sqrt( df*s_1*s_1/rval )
> ci_high <- sqrt( df*s_1*s_1/lval )
> ci_low
[1] 16.56753
> ci_high
[1] 22.53895
> # or we can do it the short way
> source("../ci_stddev.R")  #load the function
> ci_stddev(n_1, s_1, c_level )
         CI Low         CI High deg. of freedom      left chisq
       16.56753        22.53895        37.00000        26.29309
    right chisq
       48.66238
> #
>
> ##################
> ## C A S E:  2  ##
> ##################
> s_1 <- 55.5   # sample standard deviation
> c_level <- 0.860 # set the confidence level
> n_1 <- 27     # set the desired margin of error
>
> df <- n_1 - 1;
> df
[1] 26
> ci_stddev(n_1, s_1, c_level )
         CI Low         CI High deg. of freedom      left chisq
       46.32716        70.20273        26.00000        16.24992
    right chisq
       37.31538
> #
>
> ##################
> ## C A S E:  3  ##
> ##################
> s_1 <- 16.5   # sample standard deviation
> c_level <- 0.990 # set the confidence level
> n_1 <- 109     # set the desired margin of error
>
> df <- n_1 - 1;
```

```
> df
[1] 108
> ci_stddev(n_1, s_1, c_level )
         CI Low         CI High deg. of freedom      left chisq
       14.01945        19.94697       108.00000        73.89888
    right chisq
      149.59938
> #
>
>
> ##################
> ## C A S E:  4  ##
> ##################
>
> source("../gnrnd4.R")
> gnrnd4(1517043204,4000437)  # generate the sample
style= 4   size= 33    seed= 51704   num digits= 1   alt_sign= 1
[1] "DONE "
> head( L1 )
[1] 48.4 40.1 41.6 50.6 37.3 43.3
> tail(L1)
[1] 37.1 48.1 37.3 39.1 34.7 36.9
> s_1 <- sd( L1 )      # sample standard deviation
> s_1
[1] 4.457586
> c_level <- 0.930     # set the confidence level
> n_1 <- length( L1 )  # set the sample size
> n_1
[1] 33
>
> df <- n_1 - 1;
> # we can do this the long way
> df
[1] 32
> alpha <- 1 - c_level
> lval <- qchisq( alpha/2, df )
> lval
[1] 19.11329
> rval <- qchisq( alpha/2, df, lower.tail=FALSE)
> rval
[1] 47.91831
> ci_low  <- sqrt( df*s_1*s_1/rval )
> ci_high <- sqrt( df*s_1*s_1/lval )
> ci_low
[1] 3.642705
> ci_high
[1] 5.767757
> # or we can do it the short way
>
> ci_stddev(n_1, s_1, c_level )
         CI Low         CI High deg. of freedom      left chisq
       3.642705        5.767757       32.000000       19.113294
    right chisq
      47.918307
> #
> ##################
> ## C A S E:  5  ##
> ##################
>
> source("../gnrnd4.R")
```

```
> gnrnd4(1197084904,4500468)  # generate the sample
style= 4   size= 50    seed= 19708   num digits= 1   alt_sign= 1
[1] "DONE "
> head( L1 )
[1] 49.7 40.9 47.9 39.4 45.8 55.2
> tail(L1)
[1] 42.7 49.0 51.9 38.3 51.0 46.4
> s_1 <- sd( L1 )      # sample standard deviation
> s_1
[1] 4.102675
> c_level <- 0.830     # set the confidence level
> n_1 <- length( L1 )  # set the sample size
> n_1
[1] 50
>
> df <- n_1 - 1;
>
> ci_stddev(n_1, s_1, c_level )
         CI Low          CI High deg. of freedom      left chisq
       3.615546        4.780981       49.000000       36.082457
     right chisq
       63.093190
> #
```