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> #This is my attempt to do the worksheet on confidence
> # intervals for 1 population, sigma known
> #
> # One Population: sigma known
>
> # we need to put the functin ci_known() into our
> # environment
>
> source("../ci_known.R")
>
> # Case 1;
> #  I will store the required values in variables just so that
> # it is clear which values go where in the function
>
> n_1 <- 40
> sigma_1 <- 6.22
> xbar_1 <- 73.14
> ci_level <- 0.96
> area_to_right <- (1-ci_level)/2
> z <- qnorm( area_to_right, lower.tail=FALSE)
> z
[1] 2.053749
> ci_known( sigma_1, n_1, xbar_1, ci_level )
    CI Low    CI High        MOE  Std Error
71.1202029 75.1597971  2.0197971  0.9834684
> #
> #
> # Case 2
> n_1 <-48
> sigma_1 <- 5.85
> xbar_1 <- 75.39
> ci_level <- 0.98
> area_to_right <- (1-ci_level)/2
> z <- qnorm( area_to_right, lower.tail=FALSE)
> z
[1] 2.326348
> ci_known( sigma_1, n_1, xbar_1, ci_level)
    CI Low    CI High        MOE  Std Error
73.4256906 77.3543094  1.9643094  0.8443748
> #
> #
> # Case 3
> n_1 <-17
> sigma_1 <- 6.22
> xbar_1 <- -3.29
> ci_level <- 0.96
> area_to_right <- (1-ci_level)/2
> z <- qnorm( area_to_right, lower.tail=FALSE)
> z
[1] 2.053749
> ci_known( sigma_1, n_1, xbar_1, ci_level)
    CI Low    CI High        MOE  Std Error
-6.3882273 -0.1917727  3.0982273  1.5085716
> #
> #
> #
> # Case 4
> sigma_1 <- 4.7
>
> # now we need to load gnrnd4 so that we can use it to
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> # generate the  values in the table
> source("../gnrnd4.R")
> # then we can generate the desired values of the table
> gnrnd4(1670693904,4700487)
style= 4   size= 40    seed= 67069   num digits= 1   alt_sign= 1
[1] "DONE "
> # and now, we will look at the first and last six values
> # just to be sure we have the right values
> head(L1)
[1] 49.7 47.1 51.5 59.6 53.5 59.4
> tail(L1)
[1] 46.5 42.9 50.7 49.9 45.2 41.3
> #
> n_1 <- length( L1 )
> xbar_1 <- mean( L1 )
> #
> # sample size and mean
> n_1
[1] 40
> xbar_1
[1] 49.1875
> #
> ci_level <- 0.80
> area_to_right <- (1-ci_level)/2
> z <- qnorm( area_to_right, lower.tail=FALSE)
> z
[1] 1.281552
> ci_known( sigma_1, n_1, xbar_1, ci_level)
    CI Low    CI High        MOE  Std Error
48.2351339 50.1398661  0.9523661  0.7431353
> #
> # Case 5
> sigma_1 <- 8.5
>
> #  we can generate the desired values of the table
> gnrnd4(6232646504,8500629)
style= 4   size= 66    seed= 23264   num digits= 1   alt_sign= -1
[1] "DONE "
> # and now, we will look at the first and last six values
> # just to be sure we have the right values
> head(L1)
[1] -59.2 -56.0 -48.1 -66.7 -74.3 -74.0
> tail(L1)
[1] -57.4 -59.1 -74.6 -53.3 -70.0 -61.9
> #
> n_1 <- length( L1 )
> xbar_1 <- mean( L1 )
> #
> # sample size and mean
> n_1
[1] 66
> xbar_1
[1] -64.00455
> #
> ci_level <- 0.92
> area_to_right <- (1-ci_level)/2
> z <- qnorm( area_to_right, lower.tail=FALSE)
> z
[1] 1.750686
> ci_known( sigma_1, n_1, xbar_1, ci_level)
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    CI Low    CI High        MOE  Std Error
-65.836249 -62.172842   1.831704   1.046278
> #
>
>
> # Case 6
> #
> sigma_1 <- 6.9
>
> #  we can generate the desired values of the table
> gnrnd4(1695512504,6900026)
style= 4   size= 26    seed= 69551   num digits= 1   alt_sign= 1
[1] "DONE "
> # and now, we will look at the first and last six values
> # just to be sure we have the right values
> head(L1)
[1]  5.9  6.3  4.3  0.8 19.5  7.8
> tail(L1)
[1]  9.5 11.5  7.4 -3.5 -2.5  0.7
> #
> n_1 <- length( L1 )
> xbar_1 <- mean( L1 )
> #
> # sample size and mean
> n_1
[1] 26
> xbar_1
[1] 3.057692
> #
> ci_level <- 0.88
> area_to_right <- (1-ci_level)/2
> z <- qnorm( area_to_right, lower.tail=FALSE)
> z
[1] 1.554774
> ci_known( sigma_1, n_1, xbar_1, ci_level)
   CI Low   CI High       MOE Std Error
0.9537706 5.1616140 2.1039217 1.3532013
> #
```