The program may be used as a regular calculator.

- + to add
- - to subtract
- * to multiply
- / to divide
- ^ to raise to a power
- sqrt to square root; any other root, use a fractional exponent

To enter a data set

- c( )

The cursor will then appear inside the parenthesis and you'll enter the data set, separating each number with a comma. Lastly, hit enter.

Name a data set

- name=c( )

Mean of a data set

- mean(name of data set) or mean(enter the data set)

Median of a data set

- median(name of data set) or median(enter the data set)

Sort data

- sort(name of data set) or sort(enter the data set)

Variance of a data set

- var(name of data set) or var(enter the data set)

Standard Deviation of a data set

- sd(name of data set) or sd(enter the data set)

Five Number Summary

- fivenum(name of data set) or fivenum(enter data set)

Factorial

- factorial(number)

For permutations, use the factorial command.

Combination

- choose(n,r)

Binomial Distributions

- $P(X = k)$ = dbinom(k,n, p)
- $P(X \leq k)$ = pbinom(k,n,p)
- $P(X > k)$ = 1 – pbinom(k,n,p)

In the command, n = number of trials, k = number of successes and p = probability of success

Geometric Distributions

- $P(X = n)$ = dgeom($n - 1$, p)
- $P(X \leq n)$ = pgeom($n - 1$,p)
- $P(X > n)$ = 1 – pgeom($n - 1$,p)

where n = nth trial and p = probability of success

Normal Distributions

- $P(X < b)$ = pnorm(b, μ, σ)
- $P(X > a)$ = 1 – pnorm(a, μ, σ)
- $P(a < X < b)$ = pnorm(b, μ, σ) – pnorm(a, μ, σ)

If the random variable is the standard normal variable, then leave μ and σ blank.

- $P(X < c) = p$, command: qnorm(p, μ, σ)
- $P(X > c) = p$, command: qnorm($1 - p, \mu, \sigma$)
- $P(-c < X < c) = p$, command: qnorm($(p+1)/2, \mu, \sigma$)

If the random variable is the standard normal variable, then leave μ and σ blank.

Correlation
- cor(x,y).

Coefficient of Determination
- cor(x,y)^2

Least Square Regression Line (LSRL)
- lm(y~x)

Residuals of the LSRL
- resid(lm(y~x))

Draw the LSRL through the scatterplot
- abline(lm(time~age))

Draw a horiztonal line at 0 through the residual plot
- abline(0,0)

N random intergers from a to b
- sample(a:b,N)

Scatterplot
- plot(name of x data set,name of y data set,pch=16,cex=2,cex.lab=2,cex.axis=2)

In the command, pch = 16 for filled dots, cex = 2 for larger dots, cex.lab = 2 for larger labels, and cex.axis = 2 for larger tickmarks

z^*
- $z^* = \text{qnorm}\left(\frac{1 + \text{confidence level}}{2}\right)$
- qnorm(area to the left) = critical value for the z-distribution
- pnorm(z) = area to the left
- 1 – pnorm(z) = area to the right

t^*
- $\text{qt}\left(\frac{1 + \text{CL}}{2}, \text{df}\right)$
- qt(area to the left,df) = critical value for the t-distribution
- pt(t, df) = area to the left
- 1 – pt(t, df) = area to the right

χ^2- distribution

p-value: 1-pchisq(test statistic, df)

Graphs

- barplot(name of data set,names.arg=c(“name of first bar”,”name of second bar”,etc))
- pie(name of data set,labels=c(“name of first section”,”name of second section”,etc))
- stripchart(name of data set,method=”stack”,pch=16,cex=2,offset=1)

This command gives a dot plot.
In the command, pch = 16 for filled dots, cex = 2 for larger dots and offset for spacing out dots.

- stem(name of data set)
- hist(name of data set)
- boxplot(name of data set,horizontal=TRUE)

In the command, horizontal=TRUE for a horizontal boxplot.
The word true must be capitalized.