# 0

# Introduction to the TI-83 Plus and TI-84 Plus

## Calculator Note 0A: Basics

### Keyboard

Each key on the TI-83 Plus and TI-84 Plus accesses up to three objects, operations, or menus. The primary object, operation, or menu is written on the key. Above each key are other objects, operations, and menus, written in yellow or blue (yellow on the TI-83 Plus, blue on the TI-84 Plus) or green.

Press the yellow or blue [2ND] key before any other key to access the object, operation, or menu that is written in yellow or blue above the respective key. For example, to access the List menu, press [2ND] followed by [STAT]. Because the 2nd command for the [STAT] key is LIST, these Calculator Notes will refer to these keystrokes as [2ND] [LIST]. That is, the command above the key will be set in brackets, [ ].

Press the green [ALPHA] key before any other key to access the object or operation that is written in green above the respective key. In general, [ALPHA] is used to type letters, double quotation marks, spaces, question marks, and colons. For example, to type the letter E, press [ALPHA] followed by [SIN], which will be denoted as [ALPHA] [E] in these Calculator Notes.

### Menus

Objects and operations that are not written on the keyboard can usually be found within menus. Many menus, such as the List menu, have multiple submenus. Use the left and right arrow keys to move among submenus. Use the up and down arrow keys to select an item from the menu, or press the number or letter associated with the item. For example, to select the median( function, press [2ND] [LIST]; arrow right to the MATH submenu; and arrow down to 4:median( and press [ENTER], or simply press [4].
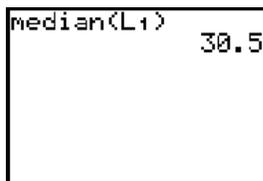
```
NAMES OPS MATH
1:min(
2:max(
3:mean(
4▪median(
5:sum(
6:prod(
7↓stdDev(
```

### Home Screen    2ND [QUIT]

The Home screen is where you'll do most of your calculations. You access the Home screen from any other screen by pressing 2ND [QUIT]. This screen shows a calculation on the Home screen.

```
median(L₁)
              30.5
```

### Mode Screen    MODE

The Mode screen is where you set operating modes for the calculator. You access the Mode screen by pressing MODE. Among the settings you can change are the numeric notation, the number of decimal places displayed, the unit of angle measurements, and several graphing modes. These Calculator Notes generally refer to these settings as "modes." For example, the next screen shows the calculator in Normal mode, Radian mode, Function mode, Connected mode, Sequential mode, Real mode, and Full mode. It also shows the number of decimal places as floating. For a statistics course, it will be most beneficial for the calculator to be set in Function mode (FUNC) and Connected mode (CONNECTED). Alternate settings will be discussed when necessary. The TI-84 Plus includes the time and date, which can be set from the Mode screen.

```
NORMAL  SCI  ENG
FLOAT  0 1 2 3 4 5 6 7 8 9
RADIAN  DEGREE
FUNC  PAR  POL  SEQ
CONNECTED  DOT
SEQUENTIAL  SIMUL
REAL  a+bi  re^θi
FULL  HORIZ  G-T
SETCLOCK 01/01/07 12:00PM
```

## Calculator Note 0B: Lists

The TI-83 Plus and TI-84 Plus use lists to store and manipulate sets of data. The calculators have six default lists, L₁ through L₆. Other lists can be named and created. To use lists L₁ through L₆ on the Home screen, press 2ND [L₁] through 2ND [L₆]. To see and use all lists, including user-created lists, press 2ND [LIST] and look at the NAMES submenu.
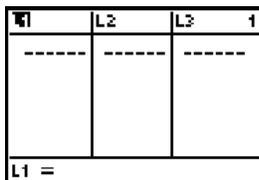
```
NAMES OPS MATH
2↑L₂
3:L₃
4:L₄
5:L₅
6:L₆
7:RESID
8 TIME
```
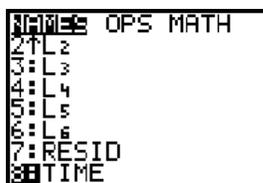
### Creating Other Lists

Lists other than lists L₁ through L₆ can be named and created by following these steps.
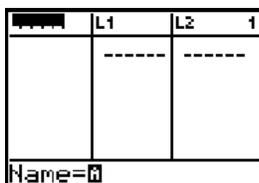
**a.** Press $\boxed{\text{STAT}}$ and select **1:Edit** from the EDIT menu to enter the List Editor screen.
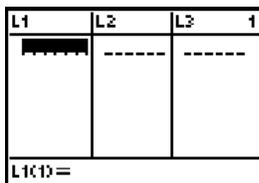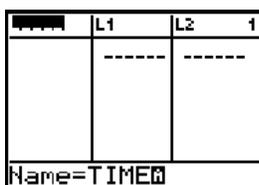


**b.** Arrow up and highlight the name of a list.



**c.** To insert the new list before any preexisting list, press insert, $\boxed{\text{2ND}}$ [INS]. To place the new list after all preexisting lists, arrow right past the last list.



**d.** Enter the name of your list, for example, TIME. Press $\boxed{\text{ENTER}}$ to accept the new list name.



**e.** Arrow down and begin entering data.

The new list, TIME, is now listed under the NAMES submenu when you press $\boxed{\text{2ND}}$ [LIST].

## Manipulating the List Editor Screen

The default List Editor screen displays lists L1 through L6. To change it to any combination of lists, press $\boxed{\text{STAT}}$ and select **5:SetUpEditor** from the EDIT menu. Enter the names of the desired lists, separated by commas. (Press $\boxed{\text{2ND}}$ [LIST] and use the NAMES submenu to select user-defined lists.) Then press $\boxed{\text{ENTER}}$. The List Editor screen will now contain only the lists specified.
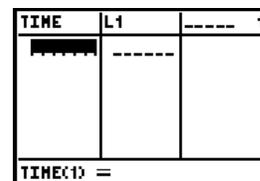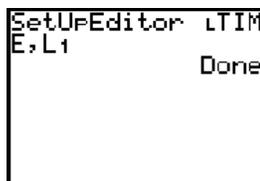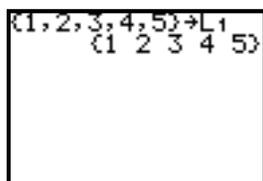
To return to the default, lists L1 through L6, execute the SetUpEditor command with no lists specified.

## Entering Data into Lists

There are two ways to enter data into lists.

1.  Enter the elements into the Home screen, separated by commas and enclosed in braces. Then press the store key ([STO▸]), enter the name of the list, and press [ENTER].

```
{1,2,3,4,5}→L1
        {1 2 3 4 5}
```

2.  Alternatively, press [STAT] and select 1:Edit from the EDIT menu, and enter the elements directly into the List Editor screen. Place the cursor in the desired cell, type the value, and press [ENTER].
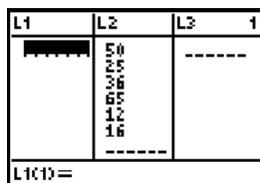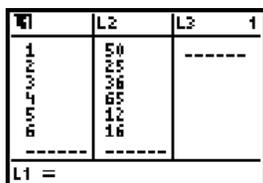
```
L1      L2      L3      1
1
2
3
4
5
▮
L1(6)=6
```

## Clearing a List of Its Elements

There are three ways to clear lists.

1.  Press [STAT], select 4:ClrList from the EDIT menu, enter the names of the lists, separated by commas, and press [ENTER]. For example, to clear list L1, enter ClrList L1 into the Home screen.

```
ClrList L1
              Done
```
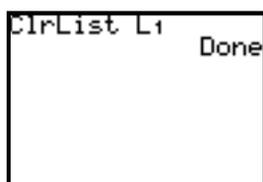
2.  Alternatively, enter the List Editor screen, arrow up and left or right to highlight the name of the list, and press [CLEAR] [ENTER].

```
L1      L2      L3      1        L1      L2      L3      1
1       50                       ▮       50
2       25              ------            25              ------
3       36                               36
4       65                               65
5       12                               12
6       16                               16
------  ------                   ------  ------
L1 =                             L1(1)=
```

3.  To clear all lists, press [2ND] [CATALOG], scroll down to ClrAllLists, and press [ENTER] [ENTER].

**List Submenus**     2ND [LIST]

When you press 2ND [LIST], there are three major menus used for manipulating lists: list names (NAMES), list operations (OPS), and mathematical functions (MATH).

```
NAMES OPS MATH
1❚L₁
2:L₂
3:L₃
4:L₄
5:L₅
6:L₆
7↓RESID
```

```
NAMES OPS MATH
1❚SortA(
2:SortD(
3:dim(
4:Fill(
5:seq(
6:cumSum(
7↓∆List(
```

```
8:Select(
9:augment(
0:List▶matr(
A:Matr▶list(
B❚L
```

```
NAMES OPS MATH
1❚min(
2:max(
3:mean(
4:median(
5:sum(
6:prod(
7↓stdDev(
```

```
B❚variance(
```

While you will use several of these functions for a statistics course, you do not need all of them. Pertinent functions will be discussed in more detail when appropriate.

# Calculator Note 0C: Graphing

Here are some of the basic commands that apply to all graphing. In later Calculator Notes, you'll learn much more about your calculator's graphing capabilities.

**Window Settings**     WINDOW

The Window screen controls the section of the rectangular coordinate system that is viewed when a function plot or a statistical plot is graphed. Press WINDOW and enter these values:

```
WINDOW
 Xmin=-9.4
 Xmax=9.4
 Xscl=1
 Ymin=-6.2
 Ymax=6.2
 Yscl=1
 Xres=1
```

Xmin = the minimum $x$-value you want to display

Xmax = the maximum $x$-value you want to display

Xscl = the number of units between tick marks on the $x$-axis

Ymin = the minimum $y$-value you want to display

Ymax = the maximum $y$-value you want to display

Yscl = the number of units between tick marks on the $y$-axis

Xres = 1

In this book, window settings for a graph are listed in the form [Xmin, Xmax, Xscl, Ymin, Ymax, Yscl]. For example, the window settings shown in the previous screen would be listed as [−9.4, 9.4, 1, −6.2, 6.2, 1].

## Zoom Commands ⬚ZOOM

Zoom commands allow you to zoom in or out or to set the Window screen to preset settings. You access the Zoom menu by pressing ⬚ZOOM.
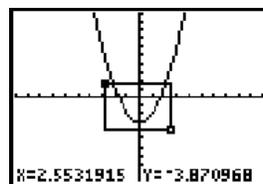
```
ZOOM MEMORY
1▓ZBox
2:Zoom In
3:Zoom Out
4:ZDecimal
5:ZSquare
6:ZStandard
7↓ZTrig
```

```
8:ZInteger
9:ZoomStat
0▓ZoomFit
```

There are three zoom commands that allow you to zoom in and out: **1:ZBox**, **2:Zoom In**, and **3:Zoom Out**.
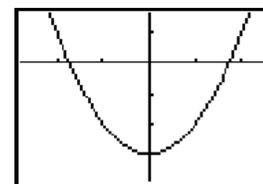
**1:ZBox** lets you draw a box around the region of interest. When you press ⬚ENTER, this region fills the screen.
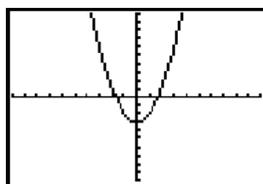


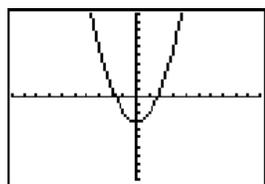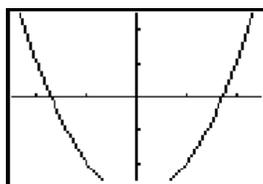$[-10, 10, 1, -10, 10, 1]$          $[-10, 10, 1, -10, 10, 1]$          $[-2.77, -2.55, 1, -3.87, 1.61, 1]$
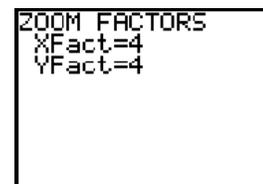
**2:Zoom In** lets you position the cursor at a center point for the zoom. When you press ⬚ENTER, the graph will be magnified about the center by factors defined by **XFact** and **YFact**. To change the factors, press ⬚ZOOM, arrow to **Memory**, and select **4:SetFactors**.



$[-10, 10, 1, -10, 10, 1]$          $[-2.5, 2.5, 1, -2.5, 2.5, 1]$

```
ZOOM MEMORY
1:ZPrevious
2:ZoomSto
3:ZoomRcl
4▓SetFactors…
```

```
ZOOM FACTORS
 XFact=4
 YFact=4
```

**3:Zoom Out** behaves similarly to **Zoom In**, but the graph reduces about the center by factors defined by **XFact** and **YFact**.

There are three preset window settings: **4:ZDecimal**, **6:ZStandard**, and **7:ZTrig**.

**4:ZDecimal** uses the settings $[-4.7, 4.7, 1, -3.1, 3.1, 1]$. In this setting, every pixel is 0.1 unit. Windows that have convenient pixel coordinates are often called "friendly" windows.

**6:ZStandard** uses $[-10, 10, 1, -10, 10, 1]$.

**7:ZTrig** uses a window that is approximately $[-2\pi, 2\pi, \pi/2, -4, 4, 1]$.

Lastly, there are four zoom commands that reformat the window settings to match specific criteria: **5:ZSquare**, **8:ZInteger**, **9:ZoomStat**, and **0:ZoomFit**.

**5:ZSquare** adjusts either **Xmin** and **Xmax** or **Ymin** and **Ymax** such that the coordinate axes are square—that is, units in the horizontal and vertical direction are the same size.
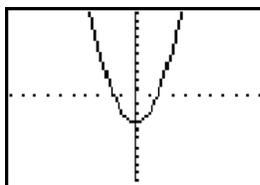


$[-10, 10, 1, -10, 10, 1]$



$[-15.16, 15.16, 1, -10, 10, 1]$

**8:ZInteger** adjusts the window settings such that the cursor moves in integer increments.



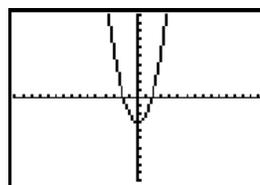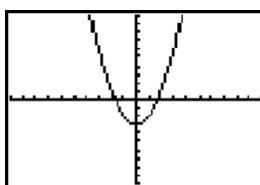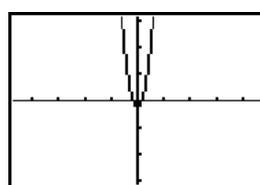$[-10, 10, 1, -10, 10, 1]$



$[-47, 47, 10, -31, 31, 10]$

**9:ZoomStat** is of particular interest for a statistics course. It adjusts the window settings to contain the data used for all active statistical plots. (Calculator Note 0E will provide more information about defining statistical plots.)

**0:ZoomFit** adjusts **Ymin** and **Ymax** to include the minimum and maximum within the current domain of all active function plots. It does not change **Xmin** or **Xmax**.

## Tracing    [TRACE]

Pressing [TRACE] takes you to the Graph screen and gives you a trace cursor on the function plot or statistical plot. The plot being traced is shown in the upper-left corner, and the approximate coordinates of the trace point are shown at the bottom of the screen. Pressing the right or left arrow keys moves the trace cursor along the plot. If multiple plots are turned on, pressing the up or down arrow keys moves the trace cursor to another plot.
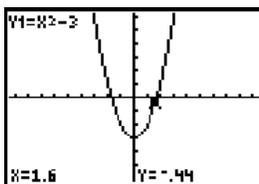


$[-9.4, 9.4, 1, -6.2, 6.2, 1]$

# Calculator Note 0D: Function Plots    [Y=]

In Function mode, the TI-83 Plus and TI-84 Plus can graph up to ten rectangular functions, $Y_1$ through $Y_0$. To enter a function, press [Y=] and enter the equation in $y=$ form. When you enter a new function, the $=$ symbol becomes highlighted, which means it will graph when you press [GRAPH]. You can turn off the graph of a function without clearing it from the Y= screen by arrowing

left to its = symbol and pressing ENTER. When the = symbol is not highlighted, the equation is turned off and will not graph. In this screen, only Y1 is turned on.

```
Plot1 Plot2 Plot3
\Y1◼X²-3
\Y2=X²-3
◥Y3=X²-3
▶Y4=X²-3
•◦Y5=X²-3
◦Y6=X²-3
∴Y7=X²-3
```
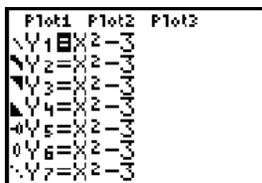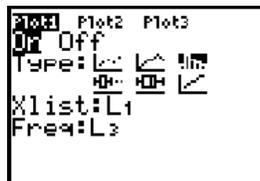
### Graph Styles

The calculator provides seven graphing styles: thin line, thick line, shade above, shade below, ball with path, ball without path, and dotted line. These styles are selected by arrowing left to the segment beside each Y and pressing ENTER to cycle through the styles. The previous screen shows all seven styles selected for functions Y1 through Y7, respectively.

In Connected mode, the default style is the thin line. In Dot mode, the default is the dotted line. You can change this mode setting by pressing MODE and changing the fifth line. It is recommended, however, that you leave the calculator in Connected mode.

## Calculator Note 0E: Statistical Plots     2ND [STAT PLOT]

In any mode, the calculator allows you to graph up to three statistical plots, or stat plots. Press 2ND [STAT PLOT] and select the number of the plot to define. Follow these steps:

```
STAT PLOTS
1◼Plot1…On
   ⬛ L1    L3
2:Plot2…Off
   ⬈ L2    RESID +
3:Plot3…Off
   ⬈ L5    L6    .
4↓PlotsOff
```

```
Plot1 Plot2 Plot3
On Off
Type:⬈ ⬈ ▥
     ⬛ ▥ ⬈
Xlist:L1
Freq:L3
```

a. Select On.

b. Select one of the six plot forms: scatterplot, xyline plot, histogram, modified boxplot with outliers, boxplot, or normal probability plot.

c. Enter the lists and frequencies to be used. The information required depends on the type of plot. Scatterplots and xyline plots require two lists; histograms, modified boxplots, and boxplots require one list and a number or list for frequencies. Normal probability plots require one list and a data axis. (*Note:* For plots that require frequencies, the frequencies can be entered into one of the lists.)

| Scatterplot | xyline Plot | Histogram |
|---|---|---|



| Modified Boxplot | Boxplot | Normal Probability Plot |
|---|---|---|
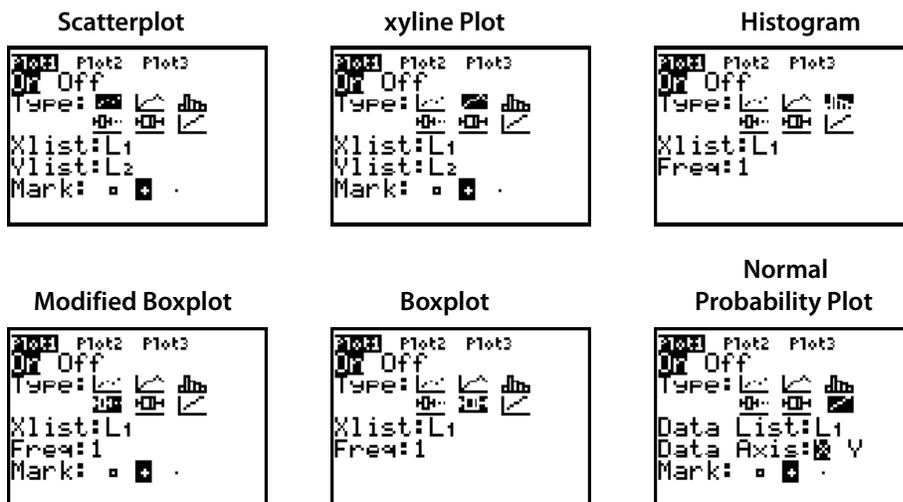


**d.** For scatterplots, xyline plots, and modified boxplots, select the mark to use in the plot. If you graph several plots at once, it is wise to use a different mark for each plot.

**e.** Set a window and press GRAPH, or press ZOOM and select **9:ZoomStat** from the ZOOM menu to see the plot.

After you have a stat plot defined, you can turn it on or off from the Y= menu. Press Y= and arrow up to the line of plot names; arrow left or right to select the plot and press ENTER to turn it on or off. When the plot name is highlighted, it is turned on.
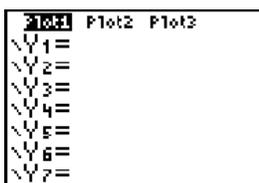


## Calculator Note 0F: Statistical Menus    STAT

When you press STAT, there are three menus used for critical statistical capabilities: EDIT, CALC, and TESTS.
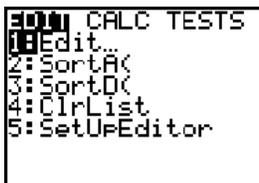


The EDIT menu allows you to enter the List Editor screen in order to edit lists, sort a list (or lists) in ascending or descending order, clear the contents of lists, or set up the List Editor screen.

Pertinent functions in the CALC and TESTS menus will be discussed in more detail when appropriate.

```
EDIT CALC TESTS
1■1-Var Stats
2:2-Var Stats
3:Med-Med
4:LinReg(ax+b)
5:QuadReg
6:CubicReg
7↓QuartReg

8↑LinReg(a+bx)
9:LnReg
0:ExpReg
A:PwrReg
B:Logistic
C:SinReg
D■Manual-Fit
```

```
EDIT CALC TESTS
1■Z-Test…
2:T-Test…
3:2-SampZTest…
4:2-SampTTest…
5:1-PropZTest…
6:2-PropZTest…
7↓ZInterval…

8↑TInterval…
9:2-SampZInt…
0:2-SampTInt…
A:1-PropZInt…
B:2-PropZInt…
C:X²-Test…
D■X²GOF-Test…

E:2-SampFTest…
F:LinRegTTest…
G:LinRegTInt…
H■ANOVA(
```

## Calculator Note 0G: Variables Menus   VARS

The Variables menus allow you to reference all of the variables that the calculator uses. For example, if you wish to reference Xmax for a graph, you can access its current value by pressing VARS , selecting 1:Window, then 2:Xmax. There are two menus: VARS (generally single-value variables) and Y-VARS (equation and function definitions that would be entered into the Y= screen).

```
VARS Y-VARS
1■Window…
2:Zoom…
3:GDB…
4:Picture…
5:Statistics…
6:Table…
7:String…
```

```
VARS Y-VARS
1■Function…
2:Parametric…
3:Polar…
4:On/Off…
```

For a statistics course, the variables accessed by pressing VARS and selecting 5:Statistics from the VARS menu are of particular importance and will be discussed in more detail when appropriate. The variables are stored under five submenus. Shown on the next page are the summary statistic variables (XY), the regression variables (EQ), and the test variables (TEST) submenus.

```
XY Σ EQ TEST PTS      XY Σ EQ TEST PTS      XY Σ EQ TEST PTS
1:n                    1:RegEQ               1:p
2:x̄                    2:a                   2:z
3:Sx                   3:b                   3:t
4:σx                   4:c                   4:χ²
5:ȳ                    5:d                   5:F
6:Sy                   6:e                   6:df
7↓σy                   7↓r                   7↓p̂

8:minX                 8:r²                  8:p̂1
9:maxX                 9:R²                  9:p̂2
0:minY                                       0:s
A:maxY                                       A:x̄1
                                             B:x̄2
                                             C:Sx1
                                             D↓Sx2

                                             E:Sxp
                                             F:n1
                                             G:n2
                                             H:lower
                                             I:upper
```
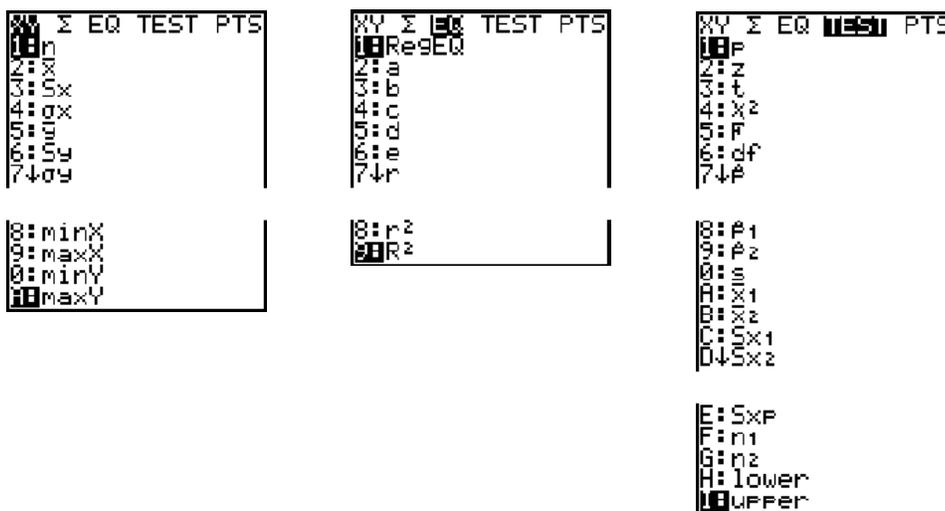
The rectangular function variables, found by pressing [VARS], arrowing over to Y-VARS, and selecting 1:**Function**, are also valuable to any course. For example, to evaluate the function stored in Y₁ when $x = 3$, enter Y₁(3) into the Home screen.

```
FUNCTION               Y1(3)
1:Y1                              6
2:Y2
3:Y3
4:Y4
5:Y5
6:Y6
7↓Y7
```
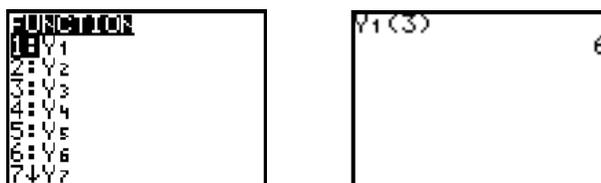
## Calculator Note 0H: Distribution Menus    [2ND] [DISTR]

```
DISTR DRAW
1:normalpdf(
2:normalcdf(
3:invNorm(
4:tpdf(
5:tcdf(
6:χ²pdf(
7↓χ²cdf(

8:Fpdf(
9↑Fcdf(
0:binompdf(
A:binomcdf(
B:poissonpdf(
C:poissoncdf(
D:geometpdf(
E:geometcdf(
```
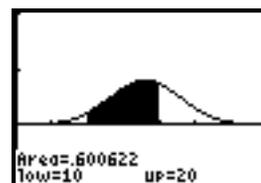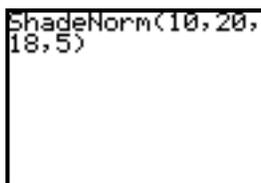
When you press [2ND] [DISTR], there are two menus that contain a wealth of functions regarding important statistical distributions. The distribution menu, DISTR, contains probability density functions (pdf) and cumulative distribution functions (cdf) for the following distributions: normal, *t*, chi-square, F, binomial, Poisson, and geometric. (*Note:* F and Poisson distributions are not covered in *Statistics in Action*.)

For discrete random variables, the pdf functions return either the probability of $X = c$ or the distribution for all *X*. The cdf functions return the cumulative sum of the probabilities between a lower bound and an upper bound.

For continuous random variables, the pdf functions provide the distribution curve (for graphing purposes). The cdf functions return the area under the pdf curve between a lower bound and an upper bound.

These functions will be discussed in more detail when appropriate.

The DRAW menu provides commands to draw distributions with shaded areas. For example, **ShadeNorm(10,20,18,5)** graphs a normal curve with mean 18 and standard deviation 5 and shades the area under the curve between *x*-values 10 and 20. (*Note:* These commands do *not* adjust the window settings. You must manually set the window before using these commands.)

```
DISTR DRAW
1▶ShadeNorm(
2:Shade_t(
3:ShadeX²(
4:ShadeF(
```

```
ShadeNorm(10,20,
18,5)
```

```
Area=.600622
low=10        up=20
```

[0, 35, 5, –0.1, 0.2, 0.1]

## Calculator Note 0I: Math Menus    MATH

Pressing MATH gives you four menus of mathematical functions, such as cube roots, the absolute value function, and converting rectangular coordinates to polar coordinates. For statistics, the probability menu, **PRB**, contains frequently used counting commands and random number generators. The counting commands include permutations (**nPr**), combinations (**nCr**), and factorial (**!**). The random number generators include **rand**, which generates random numbers between 0 and 1; **randInt**, which generates a random integer within a specified interval; **randNorm**, which generates a random number from a specified normal distribution; and **randBin**, which generates a random integer from a specified binomial distribution.

```
MATH NUM CPX PRB
1▶rand
2:nPr
3:nCr
4:!
5:randInt(
6:randNorm(
7:randBin(
```
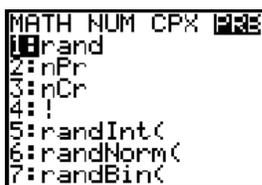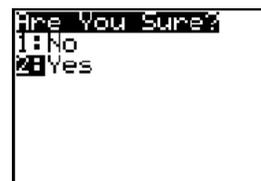
## Calculator Note 0J: Programs    PRGM

The TI-83 Plus and TI-84 Plus are programmable calculators. To run a program, press PRGM and choose the program name from the execute menu, EXEC. You edit a program by choosing its name from the EDIT menu. You can also enter a new program by arrowing over to NEW and selecting **1:Create New**. Once a program exists on one calculator, it can be shared by linking two calculators or by using Texas Instruments TI Connect computer software.
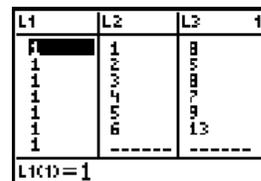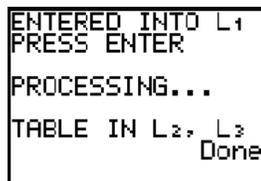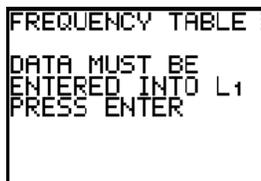
```
EXEC EDIT NEW
1▶DOTPLOT
2:FREQTABL
3:SAMPLE
4:SAMPMEAN
5:SHADNORM
```

```
EXEC EDIT NEW
1▶Create New
```
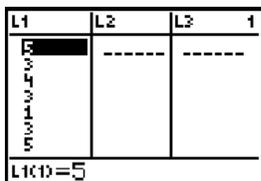
## Deleting a Program

To delete a program, press [2ND] [MEM] and select **2:Mem Mgmt/Del**. Then select **7:Prgm**. Arrow down to the name of the program and press [DEL]. The calculator will ask you to confirm your deletion—choose **1:No** or **2:Yes**.

```
MEMORY
1:About
2█Mem Mgmt/Del…
3:Clear Entries
4:ClrAllLists
5:Archive
6:UnArchive
7↓Reset…
```

```
RAM FREE    19660
ARC FREE    1237K
2↑Real…
3:Complex…
4:List…
5:Matrix…
6:Y-Vars…
7█Prgm…
```

```
RAM FREE    19660
ARC FREE    1237K
   DOTPLOTS   189
▶  FREQTABL   257
   PHDERIVS   559
   SAMPLE     270
   SAMPMEAN   475
```
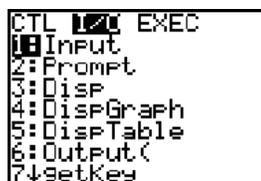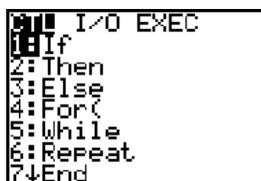
```
Are You Sure?
1:No
2█Yes
```

You can use [2ND] [MEM] and select **2:Mem Mgmt/Del** to delete other items, such as lists, functions, and applications.

## Programs in These Calculator Notes

The CD that comes with the *Statistics in Action Instructor's Resource Book* contains several prewritten programs for this course. (These programs are also available for download at www.keypress.com/keyonline or www.keymath.com.) One such program is FREQTABL, which organizes the data in list L1 into a frequency table, with values in list L2 and frequencies in list L3. Before running the program, enter your data into list L1. Run the program by pressing [PRGM], selecting FREQTABL from the EXEC menu, and pressing [ENTER].

```
L1      L2      L3     1
5 ▉    ------  ------
3
4
3
1
3
5
L1(1)=5
```

```
FREQUENCY TABLE :

DATA MUST BE
ENTERED INTO L1
PRESS ENTER
```

```
ENTERED INTO L1
PRESS ENTER

PROCESSING...

TABLE IN L2, L3
              Done
```

```
L1      L2      L3     1
1 ▉    1       8
1      2       5
1      3       8
1      4       7
1      5       9
1      6       13
1      ------  ------
L1(1)=1
```

A print version of the code is provided for each program in this book. You can manually enter the code into the calculator, or you can use the TI Connect software to transfer the program from the CD to the calculator. To manually enter the program, press [PRGM], arrow over to NEW, select **1:Create New**, type the program's name, press [ENTER], and then enter the code. Note that control and input/output commands, such as **If, Then, Input**, and **Disp**, are found by pressing [PRGM] while entering a new program. For more information about the programming capabilities of the TI-83 Plus and TI-84 Plus, including the programming code, refer to the calculator's *Graphing Calculator Guidebook*.

```
CTL  I/O  EXEC
1█If
2:Then
3:Else
4:For(
5:While
6:Repeat
7↓End
```

```
CTL  I/O  EXEC
1█Input
2:Prompt
3:Disp
4:DispGraph
5:DispTable
6:Output(
7↓getKey
```

Other programs are available through many sources, including the Texas Instruments website, education.ti.com. You may want to search the Internet for programs that could be worthwhile to your statistics course. (*Note:* Students planning to take the AP Statistics Exam should not become dependent on programs. Some programs that surpass the standard commands on the calculator may be considered "unacceptable enhancements" and may not be allowed during the examination.)

```
PROGRAM:FREQTABL              L1(1)➜L2(1)
ClrHome:FnOff :PlotsOff       sum(L1=L2(1))➜L3(1)
Disp "FREQUENCY TABLE"        For(I,2,dim(L1),1)
Disp ""                       If L1(I)=L1(I-1)
Disp "DATA MUST BE            Goto A
Disp "ENTERED INTO L1"        N+1➜N
Disp "PRESS ENTER"            L1(I)➜L2(N)
Pause                         sum(L1=L2(N))➜L3(N)
Disp ""                       Lbl A
Disp "PROCESSING..."          End
ClrList L2,L3                 Disp ""
SortA(L1)                     Disp "TABLE IN L2, L3"
1➜N
```

## Calculator Note 0K: Applications    APPS

The TI-83 Plus and TI-84 Plus allow you to add handheld software applications (Apps) that increase the calculator's functionality, in much the same way that you add software to a computer. An App is different from a program because you can neither edit nor modify an App. Also, an App is sometimes registered to a specific calculator, so that you cannot share it by linking calculators.

New TI-83 Plus and TI-84 Plus calculators come with some Apps preinstalled. You can view the calculator's list of applications by pressing APPS.

```
APPLICATIONS
1:Finance…
2:CBL/CBR
3:CtlgHelp
4:DataMate
5:Inequal
```

A variety of sources provide Apps. Some Apps are free, whereas others require that you purchase them. You may find a few Apps that are beneficial to your statistics course. The Texas Instruments website, education.ti.com, is a good place to begin searching.

### Data Set App

An App that contains all the data in the *Statistics in Action* student book is provided on the *Instructor's Resource CD.*

## Catalog Help Application

Catalog Help (**CtlgHelp**) is an App that provides the necessary syntax for every calculator command. Catalog Help is preloaded on most TI-83 Plus and TI-84 Plus calculators, and it is available free of charge through the Texas Instruments website. This App is helpful for a statistics course because it provides the parameters required for statistical functions.

To begin running Catalog Help, press [APPS] and select it from the APPLICATIONS menu. Now, from any menu or the catalog, you can press ⊞ to see the syntax of any command. For example, pressing [MATH], arrowing to NUM, arrowing to **2:round(**, and pressing ⊞ shows that the round command requires a value and the number of decimal places. The number of decimal places is optional, however, because this parameter is in square brackets.
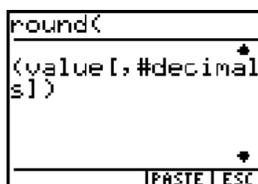
Once you know the syntax, you can press [GRAPH] to escape, or you can enter the parameters on the Catalog Help screen and press [TRACE] to paste. To quit using Catalog Help, press [APPS], choose **CtlgHelp**, and select **2:Quit CtlgHelp**.