HOW TO USE TEXAS INSTRUMENT 84 PLUS

SEQUENCES AND SERIES

To Tabulate Values eg. $y = 2^x$: [Y=] **2** [^] [x] [2nd] [Table]
To Set Starting Value of Table, press [2nd] [Tbl Set] TableStart = 10
To Sum a Series eg. find $\sum_{r=1}^{10} r^2$ **or** $\sum_{r=1}^{10} u(r)$**:** [Alpha] [F2] 2:summation Σ(

GRAPHS

To Plot a Graph eg. $y = x^3$: [Y=] [x] [^] **3** [Graph]
To hide a graph, move the cursor over the "=" sign and press [Enter].
Note: Make sure Plot 1, Plot 2, Plot 3 on the screen are unselected.
To Zoom in/out:
[Zoom] [2] 2:Zoom In, move the cursor to the place to zoom [Enter].
To reset, [Zoom] [6] 6:Zoom Standard.
To find a Zero, Minimum or Maximum Point of a Curve:
[Y=] [sin] [x] [Graph] [2nd] [Calc] [2] 2:Zero
Left Bound? move the cursor to the left of the root [Enter]
Right Bound? move the cursor to the right of the root [Enter]
Guess? [Enter]
To find a Point of Intersection of 2 Curves:
[Y=] Y_1 = [sin] [x]
Y_2 = [cos] [x] [Graph] [2nd] [Calc] [5] 5:Intersect
First Curve? move the cursor to the first curve [Enter]
Second Curve? move the cursor to the second curve [Enter]
Guess? move the cursor near to the intersection [Enter]
To Plot a Conic:
[Apps] Conics: Circle, Ellipse, Hyperbola, Parabola
Press [Alpha] [Solve] to get parameters of conics
To Plot a Parametric Function eg. $x = t^2$, $y = t + 2$:
[Mode] move the cursor over "Parametric" [Enter]
[Y=] at the line X_{1T} = [x, t, θ, n] [x^2]
at the line Y_{1T} = [x, t, θ, n] [+] **2**
Press [Window] and set T_{min} and T_{max} according to the domain [Graph].

INEQUALITIES

To Solve $x^3 > x$: [Y=] Y_1 = [x] [^] **3**
Y_2 = [x]
Y_3 = [Vars] [►] Y-Vars [Enter] [Enter] [2nd] [Test] [3] 3:>
[Vars] [►] Y-Vars [Enter] [2] 2:Y_2 [Graph].
The solution is $-1 < x < 0$ or $x > 1$.

SYSTEMS OF LINEAR EQUATIONS

To Solve $x + 2y = 1$
$3x + 5y = 4$
[Apps] PlySmlt2 [Enter] 2: Simultaneous Eqn Solver

FUNCTIONS

To Plot the Inverse of a Function:
[Y=] [ln] [x] [Graph]
[2nd] [Draw] [8] 8:Draw Inverse [Vars] [►] Y-Vars [Enter] [Enter] [Enter].
To specify the Domain of a Function eg. $y = x^3$, $0 \le x \le 2$:
[Y=] [(] [x] [^] **3** [)] [/] [(] [x] [2nd] [Test] [4] 4:≥ **0** [)]
[/] [(] [x] [2nd] [Test] [6] 6:≤ **2** [)] [Graph]
To Plot a Piecewise Function (For OS 5.3 and above):
[Math] B: Piecewise(

CALCULUS

To Find the Derivative at a Point: [Alpha] [F2] 2:nDeriv(
To Draw a Tangent to a Curve eg. $y = \sin x$ at $x = 0$
[Y=] [sin] [x] [Graph]
[2nd] [Draw] [5] 5:Tangent **0** [Enter]
To Plot the Graph of the Derivative eg. to plot the derivative of sin x:
[Y=] Y_1 = [sin] [x]
Y_2 = [Math] [8] 8:nDerivative [Vars] [►] Y-Vars
[Enter] [Enter] [,] [x] [,] [x] [Graph]
To Integrate eg. find $\int_0^{\pi} \sin x\, dx$: [Alpha] [F2] 4:fnInt(

VECTORS

To Find Line of Intersection of 2 Planes $x + 2y + 3z = 1$
$4x + 5y + 6z = 2$
[Apps] PlySmlt2 [Enter] 2: Simultaneous Eqn Solver

COMPLEX NUMBERS

To operate on complex numbers eg. [2nd] [√] **3** [+] **4** [2nd] [i] [Enter].
To find argument and magnitude of a complex number eg.
[Math] [►] [►] Complex [4] 4:angle **1** [+] [2nd] [i] [Enter] [÷] [2nd] [π]
[Math] [►] [►] Complex [5] 5:absolute **3** [+] **4** [2nd] [i] [Enter]

STATISTICS

To compute ^nP_r or ^nC_r eg. $^5P_2$:
5 [Math] [◄] Probability [2] 2:nPr **2** [Enter]
To compute the pdf or cdf for a Binomial Distribution
eg. given X ~ B(4, 0.5), find P(X = 1):
[2nd] [Distr] [▲] [▲] …… Binomialpdf trials: **4**, p: **0.5**, x value: **1** [Enter].
If the last parameter is not specified, the entire pdf or cdf is produced.
To tabulate the pdf or cdf for a Binomial Distribution:
[Y=] [2nd] [Distr] [▲] …Binomialpdf trials: **4**, p: **0.5**, x value: **x** [2nd] [Table]
To compute the cdf for a Normal Distribution
eg. given N(2, 3), find P(0 ≤ X ≤ 1):
[2nd] [Distr] [2] 2:Normalcdf lower: **0**, upper: **1**, μ: **2**, σ: 2nd[√] **3** [Enter].
If μ, σ are not specified, the default values are μ = 0, σ = 1
To find the critical values for a Normal Distribution
eg. find *a* such that P(X ≤ *a*) = 0.9 for N(2, 3)
[2nd] [Distr] [3] 3:InverseNormal area: **0.9**, μ: **2**, σ: [2nd] [√] **3** [Enter].
If μ, σ are not specified, the default values are μ = 0, σ = 1

To Compute Statistics of Data eg. 1, 2, 3:
To Clear Data:
[Stat] [Enter] Move the cursor over "L1" [Clear] [Enter].
To Store Data:
[Stat] [Enter] **1** [Enter] **2** [Enter] **3** [Enter].
To Compute Statistics:
[Stat] [►] Calc [Enter] [Enter]
To Use Computed Statistics: eg. Variance = σ^2
[Vars] [5] 5: Statistics [4] 4: σx [x^2] [Enter].
To Store Grouped Data: eg.

x	1	2	3	4
f(x)	3	4	6	5

[Stat] [Enter]
Move the cursor under "L1": **1** [Enter] **2** [Enter] **3** [Enter] **4** [Enter]
Move the cursor under "L2": **3** [Enter] **4** [Enter] **6** [Enter] **5** [Enter]
To Compute Statistics for Grouped Data:
[Stat] [►] Calc [Enter] [2nd] [L_1] [,] [2nd] [L_2] [Enter]
To Restore L1 to L6: [Stat] [5] 5:Set Up Editor [Enter].

HYPOTHESIS TESTING

To test H_0: μ = 10, H_1: μ < 10 given $\sigma^2 = 2^2$, $\bar{x}$ = 9, n = 30

[Stat] [◄] Tests [Enter]
Move cursor to "Stats" [Enter]
At the line μ_0: **10**
At the line σ: **2**
At the line $\bar{x}$: **9**
At the line n: **30**
Move cursor to "< μ_0" [Enter]
Move cursor to "Calculate" [Enter]
Since p-value = 0.003 < 0.05, we reject H_0 at 5% level of significance.

LINEAR REGRESSION

eg.

x	1	2	3	4
y	3	4	6	5

To Store Data:
[Stat] [Enter] **1** [Enter] **2** [Enter] **3** [Enter] **4** [Enter]
move the cursor to below the header "L2"
3 [Enter] **4** [Enter] **6** [Enter] **5** [Enter]
To Compute Statistics:
[Stat] [►] Calc [2] 2:2-Var Stats [Enter].
To Create a Scatter Plot:
[2nd] [Stat Plot] [Enter]
Move the cursor over "On" [Enter]
Move the cursor over "" [Enter]
At the XList line: [2nd] [L1]
At the YList line: [2nd] [L2]
[Zoom] [9] 9: ZoomStat
To Compute the Regression Line of y on x:
[Stat] [►] Calc [4] 4:LinearRegression (ax+b) [Enter]
If the correlation coefficient r does not appear:
[2nd] [Catalog] scroll the cursor down to "diagnostic on" [Enter] [Enter].
To Compute the Regression Line of x on y:
[Stat] [►] Calc [4] 4:LinearRegressn (ax+b) [2nd] [L_2] [,] [2nd] [L_1] [Enter].
To Plot a Regression Line:
[Stat] [►] Calc [4] 4:LinearRegression (ax+b)
[Vars] [►] Y-Vars [Enter] [Enter] [Enter] [Graph]
To Transform Variables in the Stat List Editor eg. $L_3 = L_1^2$:
[Stat] [Enter] move the cursor over the header "L3"
[Alpha] [″] [2nd] [L_1] [x^2] [Enter].
Note: [Alpha] [″] is optional. It enables you to edit the formula typed in.

To Reset Memory for TI-84:
[2nd] [Off] then hold down [2] [8] and press [On] simultaneously [OK].