Stat 101 Calculator Summary

For TI-83, TI-83 Plus and TI-84
See http://www.stat.vcu.edu/help/TI83Handout.pdf for more details

Enter Data

[STAT] [1:Edit...] allows you to edit the lists of data L_1, L_2, L_3, and so on

Summary Statistics

[STAT] > [CALC] > [1-Var Stats] :

`1-Var Stats L1` Summary statistics for a single list of data
`1-Var Stats L1,L2` Enter frequency count in L_2 for summary stats
Enter probabilites in L_2 for expected value and standard deviation
Create Histogram see guide pg. 5
Create Boxplot see guide pg. 6

Normal Probabilities

[2nd] [VARS] > [2:normalcdf] : gives the probability between 2 bounds

`normalcdf(z1,z2)` $P(z_1 < Z < z_2)$ For $Z \sim N(0,1)$

Examples:

`normalcdf(1.4,10)` $P(Z > 1.4)$
`normalcdf(-10,1.4)` $P(Z < 1.4)$
`normalcdf(0.3,1.4)` $P(0.3 < Z < 1.4)$

`normalcdf(x1,x2,μ,σ)` $P(x_1 < X < x_2)$ For $X \sim N(\mu, \sigma)$

Examples:

`normalcdf(45,100000,40,2)` $P(X > 45)$ For $X \sim N(\mu = 40, \sigma = 2)$
`normalcdf(-100000,39,40,2)` $P(X < 39)$ For $X \sim N(\mu = 40, \sigma = 2)$
`normalcdf(39,42,40,2)` $P(39 < X < 42)$ For $X \sim N(\mu = 40, \sigma = 2)$

[2nd] [VARS] > [3:invNormal] : gives a percentile cutoff

`InvNorm(p)` Gives *z-score* such that $P(Z < z) = p$ For $Z \sim N(0,1)$
`InvNorm(p,μ,σ)` Gives *x-value* such that $P(X < x) = p$ For $X \sim N(\mu, \sigma)$

Linear Regression

[2nd] [0] > [DiagnosticOn] : Need to do this once to get r and r^2 statistics

[STAT] > [CALC] > [8:LinReg(a+bx)] :

`LinReg(a+bx) L1,L2` Regresses L_2 (Y values) on L_1 (X values)
`LinReg(a+bx) L1,L2,Y1` Regresses L_2 (Y values) on L_1 (X values), and saves line of best fit
Access Y_1 from [VARS] > [Y-VARS] > [1:Function] .
`Y1(x)` Predict $\hat{y}$ for predictor x (eg. `Y1(12)`)
View Scatterplot see guide pg. 11
View Residuals Plot see guide pg. 15

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Probabilities

MATH	>	PRB	>	4:!	Factorial (eg. 5!)
MATH	>	PRB	>	3:nCr	Binomial coefficient (eg. `10 nCr 4` = $\binom{10}{4}$)

2nd | VARS > 0:binompdf :

`binompdf(n,p,r)` $P(X = r)$ for $X \sim Binom(n, p)$

2nd | VARS > A:binomcdf :

`binomcdf(n,p,r)` $P(X \leq r)$ for $X \sim Binom(n, p)$

Hypothesis Tests

STAT > TESTS > 1:Z-Test : Test for μ, σ known and n≥30

STAT > TESTS > 2:T-Test : Test for μ, σ known and n≥30

STAT > TESTS > 3:2-SampZTest : Test for μ_1-μ_2, σ_1, σ_1 known and n_1,n_2≥30

STAT > TESTS > 4:2-SampTTest : Test for μ_1-μ_2, σ_1, σ_1 unknown or n_1,n_2<30

STAT > TESTS > 5:1-PropZTest : Test for p, see pg. 38

STAT > TESTS > 6:2-PropZTest : Test for p_1-p_2, see pg. 40

Confidence Intervals

STAT > TESTS > 7:Z-Interval : Interval for μ, σ known and n≥30. see pg 19

STAT > TESTS > 8:T-Interval : Interval for μ, σ unknown or n<30. see pg 25

STAT > TESTS > 9:2-SampZInt : Interval for μ_1-μ_2, σ_1, σ_1 known and n_1,n_2≥30. see pg 31

STAT > TESTS > 0:2-SampTInt : Interval for μ_1-μ_2, σ_1, σ_1 unknown or n_1,n_2<30. see p.32

STAT > TESTS > A:1-PropZInt : Interval for p. see p.37

STAT > TESTS > B:2-PropZInt : Interval for p_1-p_2. see p.39