Statistics Summary Sheet

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Statistics Formulas



Relative PositionZ value
$$z = \frac{x-\mu}{\sigma}$$
 or $z = \frac{x-\bar{x}}{s}$ Percentile of $x = \frac{\# \ of \ data \ values < x}{n} \cdot 100$ Percentiles, Quartiles, Deciles, P_k Locator $L = \frac{k}{100}n$ L is either a decimal (round up) or L is a whole number.L is a decimal (round up), P_k =Lth data value in the sorted listL is a whole number, $P_k = \frac{Lth + (L+1)st}{2}$

Probability Definition $p(E) = rac{n(E)}{n(S)}$					
Complement Rule $p(non E) = 1 - p(E)$					
Addition Rule $P(A \text{ or } B) = p(A) + p(B) - p(A \text{ and } B)$					
Conditional Probability $p(A \mid B) = \frac{n(A \text{ and } B)}{n(B)}$					

Odds
Odds for E $n(E): n(non E)$
Unit Odds for E $1: \frac{n(non E)}{n(E)}$

Г

Probability Distributions					
$\begin{array}{ll} \text{Mean} \mu = \sum_{all \; x} x p(x) \\ \text{Variance} \sigma^2 = \sum_{all \; x} x^2 p(x) - \mu^2 \\ \text{Standard Deviation} \sigma = \sqrt{var} \end{array}$					
Binomial Probability Distribution					
$\begin{array}{l} \text{Mean } \mu = np \\ \text{Variance } \sigma^2 = np(1-p) \\ \text{Standard Deviation } \sigma = \sqrt{np(1-p)} \end{array}$					

Estimation

Estimate the True Proportion $\bar{x} - E < \mu < \bar{x} + E$

Estimate the True Mean $\ \bar{p} - E < \mu < \bar{p} + E$

Estimate the Sample Size n

$$n = \left[\frac{\frac{Z\alpha}{2^{\sigma}}}{E}\right]^2$$

Estimate the Sample Size n

 $n = rac{\left[z_{lpha/2}
ight]^2 ar{p}(1-ar{p})}{E^2}$ prior sample proportion $ar{p}$ known

Estimate the Sample Size n

 $n = \frac{\left[z_{\alpha_{/2}}\right]^2 0.25}{E^2}$ prior sample proportion \bar{p} unknown





a is ba is the same as ba equals bThere is no difference between a and ba = b

 $a ext{ is not } b$ $a ext{ is not the same as } b$ $a ext{ does not equal } b$ There is a difference between $a ext{ and } b$ $a \neq b$

a is ba is the same as ba equals bThere is no difference between a and ba = b

 $a ext{ is not } b$ $a ext{ is not the same as } b$ $a ext{ does not equal } b$ There is a difference between $a ext{ and } b$ $a \neq b$

TI-84 Plus CE Calculator Summary



Entering a list of Data Stat>EDIT>Edit



Sorting Data Stat>EDIT>SortA(



Computing single variable computation (mean, median, standard deviation, 5 number summary) Stat>EDIT>1-Var Stats



Binomial Probability Distribution 2nd>Distr>**binompdf(**



Poisson Probability Distribution 2nd>Distr>**Poissonpdf(**



Normal Probability Distribution

2nd>Distr>Normalcdf(



Normal Probability Distribution Working Backwards 2nd >Distr>invNorm(



Estimation a Proportion Stat>Test>1-PropZInt



Estimating a Mean- Large Sample Stat>Test>ZInterval

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Estimating a Mean- Small Sample Stat>Test>TInterval



Hypothesis Testing about a Proportion Critical Values: 2nd >Distr>invNorm(Stat>Test>1-PropZTest



Hypothesis Testing about a Mean-Large Sample Critical Values: 2nd >Distr>invNorm(Stat>Test>Z-Test



Hypothesis Testing about a Mean-Small Sample Critical Values: 2nd >Distr>invT(Stat>Test>T-Test



Hypothesis Testing about Two Proportions Critical Values: 2nd >Distr>invNorm(Stat>Test>2-PropZTest



Hypothesis Testing about Two Independent Means Critical Values: 2nd >Distr>invT(Stat>Test>2-SampleT-Test

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NORMAL FLOAT AUTO REAL DEGREE MP	NORMAL FLOAT AUTO REAL DEGREE MP
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statplot f1tblsetf2formatf3calcf4tablef5y=windowzoomtracegraph	statplet f1 tblset f2 format f3 calc f4 table f5 y= window zoom trace graph
y= window zoom trace graph Quit ins 2nd mode del A-lock ink ist test A angle B draw C dist math apps prgm vars clear math apps prgm vars clear math apps prgm vars clear rmatix D sin' E cos' F tan' G T H x^1 E cos' F tan' G T H x^2 J (K) L e M x^2 J (K) L e M x^3 L e J (K) L e M x^4 J (K) L e M x^5 L e J (K) L e M x^6 J (K) L e M (K) L e M x^6 J (K) L e M (K) L e M x^6 J (K) L e M (K) L	y= window zoom trace graph quit ins and mode del A-lock link list alpha X.T.B.n istat test A angle B draw C distribution math: apps prom vars clear math: D sin' E cos' F tan' G π H x' Sin cos tan y ⁻ I EE J (K) L 0 M x ² J () ÷ 10 ² N u O V P W O (R log 7 8 9 X e ^x S L4 T L5 U L6 V] W n 4 5 6 0 -
on 0 • (-) enter	on 0 • (-) enter

Linear Regression and Correlation Entering bivariate data: Stat>EDIT>edit Scatter Plot: STAT PLOTS: 2nd >y=



ZOOM>ZoomStat



Critical Values: 2nd >Distr>invT(STAT>TESTS>LinRegTTest

