MATH 117: Elements of Statistics

SOME USEFUL FORMULAS

CENTRAL LIMIT THEOREM (CLT)

CLT for MEANS	CLT for PROPORTIONS
$\bar{X} \sim N(\mu_{\bar{x}}, \sigma_{\bar{x}})$	$\hat{P} \sim N(\mu_{\hat{p}}, \sigma_{\hat{p}})$
Mean: $\mu_{\bar{x}} = \mu$ Standard Error (SE): $\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$	Mean: $\mu_{\hat{p}} = p$ Standard Error (SE): $\sigma_{\hat{p}} = \sqrt{\frac{pq}{n}}$

CONFIDENCE INTERVALS

Maximum error estimate (EBM or ME) for μ

I. (*for* $n \geq 30$) $E = z_c \frac{\sigma}{\sqrt{n}}$; substitute s for σ if $n \geq 30$	II. (*for* $n < 30$; population normal, σ unknown) $E = t_c \frac{s}{\sqrt{n}}$; d.f. = $n - 1$
III. Sample Size (for μ): $n = \left(\frac{z_c \sigma}{E}\right)^2$	

Maximum error estimate (EBP or ME) for p

I. ($n\hat{p} \geq 5$ and $n\hat{q} \geq 5$) $E = z_c \sqrt{\frac{\hat{p}\hat{q}}{n}}$	II. Sample Size (for p): $n = \hat{p}\hat{q}\left(\frac{z_c}{E}\right)^2$

Add your formulas here:

END OF FORMULA SHEET

MATH 117: Elements of Statistics
CALCULATOR STUFF

DESCRIPTIVE STATISTICS: Five-Number Summary (1-Var Stats)

OPTIONAL: Highlight List name and 

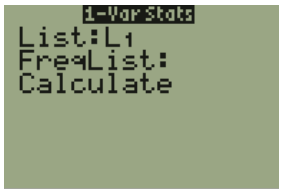
to clear existing data in the list.

to Enter data in L1. Then 

to quit the editor to go to Home Screen.

Older Calculators:
1-Var Stats L1

Newer Calculators:



L1: List name
FreqList: Frequency List [Optional]

*Select **Calculate** and Press Enter.*

If your data is given as a frequency table, enter data in L1, frequency in L2:

1-Var Stats L1, L2

List: L1
FreqList: L2

*Select **Calculate** and Press Enter.*

NORMAL DISTRIBUTIONS: *For Normal Probabilities (Finding areas given z-scores)*

Older Calculators:
normalcdf(*LeftEnd, RightEnd, Mean, stdDev*)

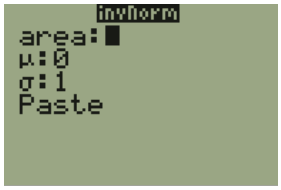
Newer Calculators:

lower: lower bound
upper: upper bound
μ: mean
σ: Standard Deviation
*Select **Paste** and Press Enter button twice.*

NORMAL DISTRIBUTIONS: *For Normal Probabilities (Finding z-scores given areas)*

Older Calculators:
invNorm(*area-to-left, mean, StdDev*)

Newer Calculators:



area: area to the **left**
μ: mean
σ: Standard Deviation

*Select **Paste** and Press Enter button twice.*

TOPIC	TI-CALC FUNCTION	*Older Calculators*	*Newer Calculators*	**COMMENTS**
CONFIDENCE INTERVALS	ZINTERVAL	STAT » Tests » 7		***Alternate method**:* STAT, right arrow to TESTS, then down arrow to 7:ZInterval
	TINTERVAL	STAT » Tests » 8		***Alternate method**:* STAT, right arrow to TESTS, then down arrow to 8:TInterval
	1-PROPZINT	STAT » Tests » A		***Alternate method**:* STAT, right arrow to TESTS, then down arrow to A:1-PropZInt

END OF CALCULATOR STUFF