

Download Link:

- [Click here to download the Spreadsheet](#)

Sections (in Excel):

- Inside the spreadsheet you can see these following sections:
 1. Discrete & Continuous Distribution
 2. Sampling Distribution
 3. Point & Interval Estimate
 4. Hypothesis Testing I
 5. Hypothesis Testing II
 6. Hypothesis Testing III
 7. Regresssion Analysis I II

Notes: There are still some other sections in the field of study that are not included in the spreadsheets. I only included the most important one based on my perspective.

How to use:

- Enter your value in the **YELLOW** box, the answer then will be auto-generated in the **GREEN** box. Don't worry/ignore the **BLUE** box and also, **DO NOT DELETE** it.

HOW TO USE: Input your value in the Yellow Box, The green box will be auto generated as your result, ignore the blue box																	
Example:										a	7	a+b=	9				
										b	2	77	<--- IGNORE ME (BUT DON'T DELETE!)				
Made By Nick																	

- To give you more understanding what can this spreadsheet does, the 3 examples will be given (I just took it from sample final exams):

Example 1:

A manager wants to estimate the daily revenue of a branch. A sample of daily revenues of **20 daily revenues** had **mean** revenue of **\$300** and **standard deviation of \$10**. Based on this sample, what is the **lower confidence limit of the 95% confidence** interval of revenues?

In this question, these are the known given info:

- n (size) is: **20**
- sample mean is **300**
- sample standard deviation is **10**

- Confidence Interval is **95%**
- **Finding lower confidence limit?**

From this question, we know that (you have to know) using **T Distribution** since the standard deviation is from the sample (not known from the population) and the confidence interval is given which belongs to **Point & Interval Estimate** section.

T Formula

INPUT VALUE	OUTPUT
n (size)	20
\bar{X} (sample mean)	300
S_x (sample standard deviation)	10
Confidence interval	95.00%

UPPER confidence level	304.6801
LOWER confidence level	295.3199

Additional Output

alpha α	0.0500
alpha/2	0.0250
Critical value t_{cv}	+/- 2.093
degree of freedom (v)	19

Input your values in the yellow boxes

This is the answer we need for the LOWER CONFIDENCE LIMIT

$$CI : \bar{X} \pm t_{cv} \left(\frac{S_x}{\sqrt{n}} \right)$$

Your final answer is: **295.3199 (295.32)** for Lower Confidence Limit.

Example 2:

The weekly profit of a restaurant follows a Normal distribution. **A sample of 25** weekly profit measurements had a **mean of 100**. If the **population standard deviation is \$36**, what is the **test statistic** to test the hypothesis that the **mean profit of the restaurant is equal to \$150**?

In this question, these are the known given info:

- n (size): **25**
- Sample Mean: **100**
- **Population** Standard Deviation: **36 (NOT SAMPLE** standard deviation).
- Null Hypothesis (H0): **mean = 150**, (Not equal 150 as in alternate hypothesis H1)
- **Test statistic (Z Stat = ?)**

This will belong to **Hypothesis Testing I Using Z Formula**

Z Formula		Fill your Null Hypothesis value	
INPUT VALUE		OUTPUT VALUE	
$H_0: \mu =$	150 (Null Hypothesis)	Critical value $Z_{cv} = +/-$	#NUM!
$H_1: \mu \neq$	150 (Alternate Hypothesis)	$Z = \frac{\bar{x} - \mu_0}{\sigma / \sqrt{n}}$	-6.94444
n (size)	25		#NUM!
σ_x (standard deviation)	36		
\bar{X} (sample mean)	100		
α			

(Alternate Hypothesis value will be auto-generated as in the green box)
 Fill up your remaining known info
 This is your answer

- Your final answer is **-6.94** when following Z stat formula, but just use **absolute value of it** (=6.94) for Z Statistic (it will **use absolute value of Z** to compare with Z critical value when considering if H0 should be reject or not so don't worry)
- **(Z critical value and Hypothesis rejection or not are not known yet since the question doesn't give you the confidence level; it's only asked you to find the test statistic only!)**

Example 3:

Based on [Example 2](#), If the confidence interval is **10%**, should we reject H0 or not?

- Now the question is given the **alpha** value which is **10% (0.1)**:

Z Formula

INPUT VALUE		OUTPUT VALUE	
$H_0: \mu =$	150 (Null Hypothesis)	Critical value $Z_{cv} = +/-$	1.64
$H_1: \mu \neq$	150 (Alternate Hypothesis)	$Z = \frac{\bar{x} - \mu_0}{\sigma / \sqrt{n}}$	-6.94444
n (size)	25	Reject H0	
σ_x (standard deviation)	36		
\bar{X} (sample mean)	100		
α	10.00%	Reject H0 at 10% of the confidence interval	

- **Reject H0** is the answer since the *absolute Z stats* is greater than the *Critical Z value* (**6.94 > 1.64**)