**Question 1**

1. **Formula for confidence interval.**

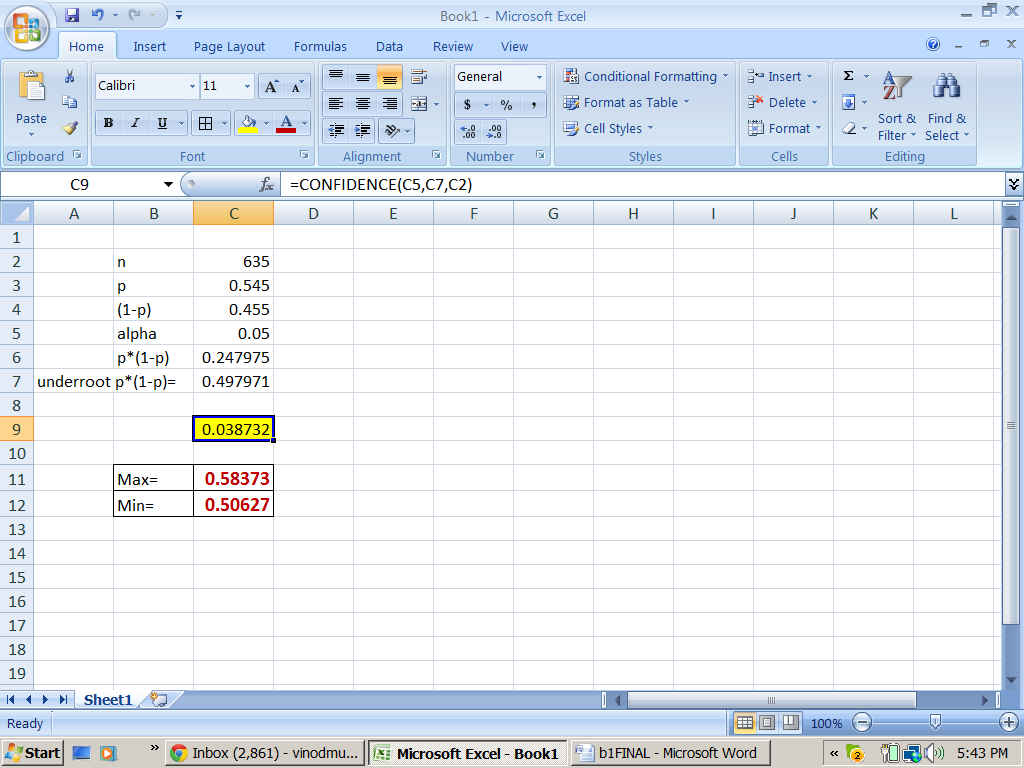
The formula for confidence interval is as follows:

Distribution of p can be assumed normal if following two conditions are satisfied:

As for condition 1, the product of n and p is 346.075 and for condition 2, the product of n and (1-p) is 288.925, the distribution of p can be safely assumed as NORMAL.

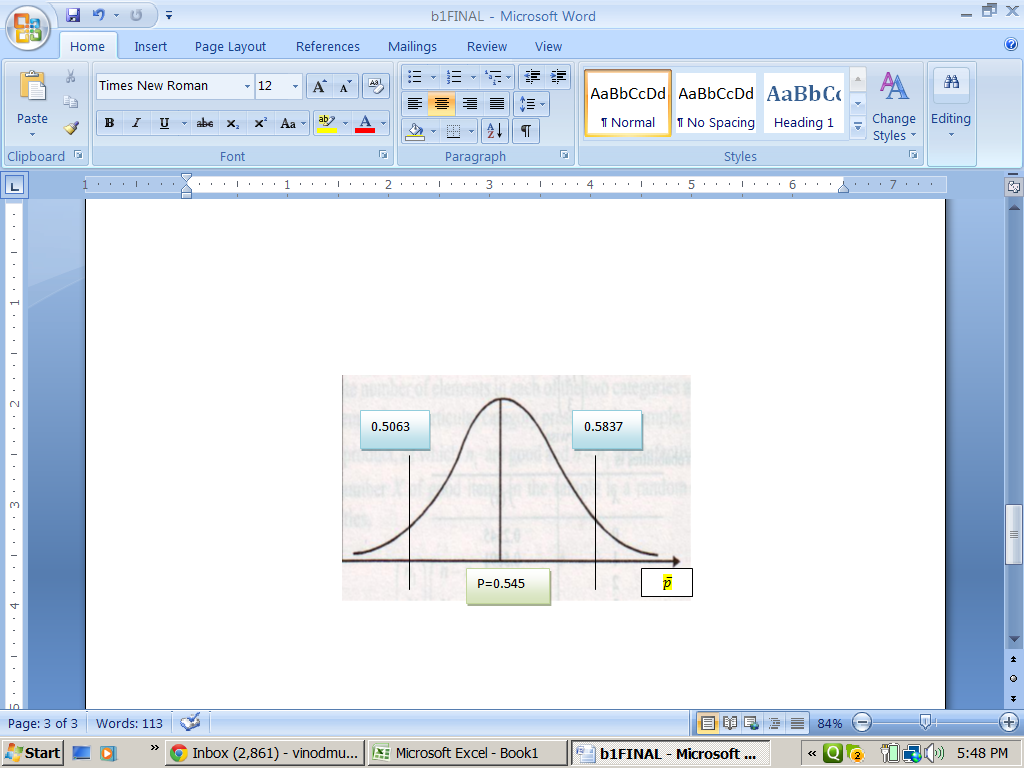
1. **95% Confidence Interval**

Through EXCEL, we can use CONFIDENCE Command as shown below:



0.038732 is equivalent to the manual calculation of

Following Figure shows the 95% Confidence Interval.



1. **If sample size changes to 100?**

The range becomes substantially wider as 0.4474 to 0.6626.

Reduction of sample size from 635 to 100 certainly reduces the power of the analysis, thus, the estimates.

1. **Critical Values at 5% level of significance**

Step 1:

Step 2:

is distributed approximately as N(0,1)

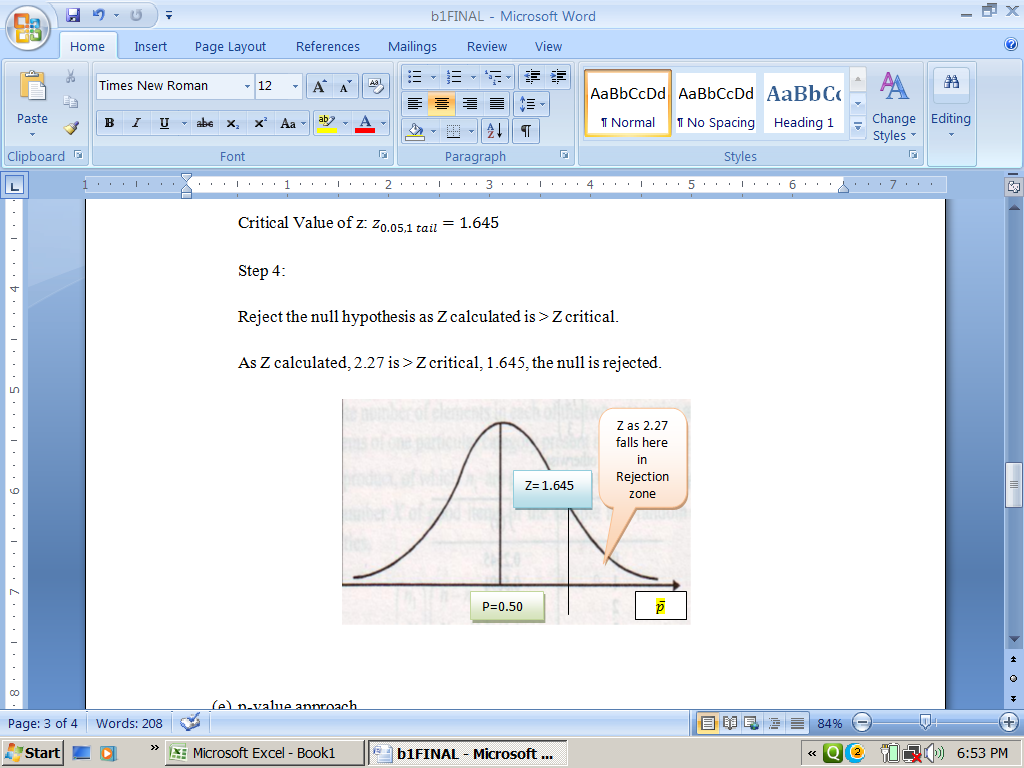
Step 3:

Critical Value of z:

Step 4:

Reject the null hypothesis as Z calculated is > Z critical.

As Z calculated, 2.27 is > Z critical, 1.645, the null is rejected.



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