Problem​ ​Statement​ ​1:

Blood glucose levels for obese patients have a mean of 100 with a standard deviation of

15. A researcher thinks that a diet high in raw cornstarch will have a positive effect on

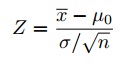
blood glucose levels. A sample of 36 patients who have tried the raw cornstarch diet

have a mean glucose level of 108. Test the hypothesis that the raw cornstarch had an

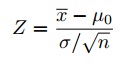
effect or not.

Problem Solution:

Formulae:



Solution:

Step 1: Null Hypothesis H0 : μ=100  
Step 2: State the [alternate hypothesis](http://www.statisticshowto.com/what-is-an-alternate-hypothesis/): H1≠100  
Step 3: State your[alpha level.](http://www.statisticshowto.com/what-is-an-alpha-level/) We’ll use 0.05 for this example. As this is a two-tailed test, split the alpha into two.  
0.05/2=0.025  
Step 4: Find the [z-score](http://www.statisticshowto.com/probability-and-statistics/z-score/) associated with your [alpha level](http://www.statisticshowto.com/what-is-an-alpha-level/). You’re looking for the area in *one tail only*. A z-score for 0.75(1-0.025=0.975) is 1.96. As this is a two-tailed test, you would also be considering the left tail (z=1.96)  
Step 5: Find the [test statistic](http://www.statisticshowto.com/test-statistic/) using this formula:   
z=(108-100)/(15/√36)=3.2.  
Step 6: if z value is less than -1.96 or greater than 1.96 (Step 3), [reject the null hypothesis](http://www.statisticshowto.com/support-or-reject-null-hypothesis/). In this case, it is greater, so we *can* reject the null.