

Worksheet 15: Final Exam Review III

1. What is the difference between a statistic and a parameter? Name examples of the symbols for each.
2. In the space below, sketch a Gaussian distribution and identify roughly the mean and standard deviation of the distribution.
3. What do you get when you square the standard deviation?
4. How much of the area under a Gaussian curve is found within 1 standard deviation of the mean? How about within 2 standard deviations? 3?
5. If you want to decrease the standard deviation of the mean by a factor of 5, by what factor should you increase the number samples?
6. What statistical test can you use to determine if there is a statistical difference between two standard deviations? How does it work?
7. What does a confidence interval represent? How can we construct one?
8. What can a confidence interval tell us about our data?

9. What is the Student's t test used for? What are the three different cases?

10. What is the difference between a one- and two-tailed t test?

11. Under what conditions is it acceptable to reject a potential outlier? What test have we learned in this class to test this?

12. How should you calculate the concentration of different components of a mixture when the individual spectra are well resolved? What about when they overlap substantially?