Should be $\sigma = \sqrt{\dfrac{\sum (x_i - \mu)^2}{N}}$

Should be $s = \sqrt{\dfrac{\sum (x_i - \bar{x})^2}{n-1}}$

Math 164 (Spring 2008) Final Review

The final exam will take place on **Monday, May 19, from 10:00 to 11:40 am**. Please note that the exam starts at the hour, rather than 10 minutes after the hour!
It is an open-book, open-notes exam. Please bring a calculator.

This review sheet help you identify the topics the final exam will focus on. Don't forget that Sections 10.1 and 10.2, which you haven't been tested on previously, will be well represented on the test.

1. The most basic concepts of descriptive statistics:
   - Understand population mean μ and sample mean $\bar{x}$.
   - Understand population standard deviation σ and sample standard deviation s.
     Make sure you know that $\sigma = \sqrt{\dfrac{\sum (x_i - \mu)^2}{N}}$, but $s = \sqrt{\dfrac{\sum (x_i - \bar{x})^2}{n-1}}$ (with the peculiar "$n-1$" in the denominator in the case of sample standard deviation!)
     You might want to review #11, 12, 13, 14, 15, 16 of Sec. 3.2.
   - Know the difference between mean and median.
   - The concept of percentiles and quartiles.
   - Be able to read frequency tables, relative frequency tables, frequency histograms, relative frequency histograms.
2. Discrete random variable X and its mean (expected value) μ_X and standard deviation σ_X. (I recommend reviewing Test #5.)
3. Binomial probability distribution: (I recommend reviewing Test #5!!)
   - $P(x) = {}_nC_x\, p^x (1-p)^{n-x}$, where $x = 0, 1, 2, \cdots, n$
   - $\mu_X = np$
   - $\sigma_X = \sqrt{np(1-p)}$
4. It is assumed that you are by now very familiar with the concept of normal distributions and the standard normal distribution, and is capable of using Table IV.
5. Definitely review the short but important Chapter 8!! I recommend that you go over all assigned problems from Sections 8.1 and 8.2.
6. Finally, you will be tested again on Chapter 9 (confidence intervals) and the covered portions of Chapter 10 (hypothesis tests—we covered only Sections 10.1 and 10.2.)