Homework # 9 (due Mon Mar 11, at the beginning of our class meeting)
We plan to grade your HW#9 papers quickly & return them to you Wednesday for you to review as your prepare for our final exam Fri Mar 15.

1. Assume you have $X_i, \ldots, X_m$ ~iid Normal (μ_X, σ_X^2) and $Y_1, \ldots Y_n$ ~ iid Normal(μ_Y, σ_Y^2), X's and Y's independent.
(a) Derive the formula for a level 1-α confidence interval for the ratio of the 2 variances. Justify each step of your derivation. You will need to identify suitable summary statistics to use, the sampling distribution for their ratio, or for a simple function of their ratio, write a suitable probability statement that can be manipulated to find the endpoints of a confidence interval.
(b) Derive the formula for a level 1- α confidence interval for the ratio of the 2 standard deviations.
(c) Use your result in (b), and the data from the last pages of our Confidence Intervals lecture notes (on Guardiola seeds) to construct the relevant 90% confidence intervals. Then give suitable statements interpreting your results in words (not formulae). Those statements should include "90%", "Guardiola seeds", "variance" and/or "variances", "confident" and/or "confidence".

From our textbook:
Pages 309-310/
Problem 5.3.3: Read the set-up for problem 5.3.3. Explore the data. Do you find evidence or reason to support or refute the normality assumption? Clearly state and justify your conclusion.
Problem 5.3.6: Clearly show how you derived your answers.

Page 377/ 6.4.4:
(a) Derive the statistical hypothesis test for this problem, clearly show & justify how you derived your solution.
(b) Show how one derives the critical (rejection) region for this hypothesis test.
(c) How does your answer to (b) compare to the level 95% confidence interval for μ? Comment on whether/why this comparison is/not surprising.

Pp 378-379/ 6.4.10, 6.4.11, 6.4.14, 6.4.21