

Statistics 1040, Section 004, Quiz 12 (20+ Points)

December 3–5, 2003

Your Name: _____

This is a take-home quiz. You may work on it at your own pace but you have to complete it and turn it in at the beginning of class on Friday, 12/05/03. If you cannot attend class on Friday, please FAX your answers to (435) 797-1822 **before** class starts. Solutions will be provided in class on Friday and will also be posted to the course Web site on Friday afternoon. Late turn-ins will not be accepted.

This quiz contains three questions, formulated as they may appear in the Final Exam. The first question is worth 20 points. The second and the third questions are extra-credit questions that are optional. These questions are worth 10 extra-points each.

Please work on this quiz independently, using as little help as possible from your friends, books, and notes. To get used to the formula sheet provided in the final, you should look at this sheet only and not at any of our previously used formula sheets. A copy of the formula sheet used in the final has been included on the Study Guide.

Question 1:

(20 Points) The drug Viagra has become quite well known, and it has had a substantial economic impact on its producer, Pfizer Pharmaceuticals. In preliminary tests for adverse reactions, it was found that when 734 men were treated with Viagra, 117 of them experienced headache. Among 725 men in a placebo group, 29 of them experienced headache.

Is there sufficient evidence to say that men who take Viagra have headache in a higher proportion than men who do not take Viagra? Clearly state the null and the alternative hypotheses, conduct an appropriate statistical test, and state your conclusions.

Question 2:

(10 Points) A machine is supposed to mix peanuts, hazelnuts, cashews, and pecans in the ratio 5:2:2:1. A can containing 500 of these mixed nuts was found to have 269 peanuts, 112 hazelnuts, 74 cashews, and 45 pecans.

Use an appropriate statistical procedure to test the hypothesis that the machine is mixing the nuts in the ratio 5:2:2:1.

Question 3:

(10 Points) Past experience indicates that the time for high school seniors to complete a standardized test follows a normal distribution with a mean of 35 minutes. A simple random sample of 20 high school seniors was taken and it was found that on average, it took them 33.1 minutes to complete this test, with a standard deviation of 4.3 minutes.

Make an appropriate test to see whether or not these data suggest that the mean time needed by high school seniors to complete this test is **different from** 35 minutes.