

SIMON FRASER UNIVERSITY
Department of Economics

Econ 835
Quantitative Methods

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Spring 2002

PROBLEM SET 3 - Statistics Review
(Due January 30)

1. Do Problem B.2 in Wooldridge (pg. 697).
2. Do Problem C.6 in Wooldridge (pgs. 740-741).
3. Do Problem C.7 in Wooldridge (pgs. 741-742).
4. A random sample of 25 observations from a normal population with mean μ and variance 16 is given. Suppose you are interested in the following hypothesis: $H_0 : \mu = 10$ versus $H_1 : \mu = 12$. Find the Type I and Type II error probabilities for the following decision rules:
 - (a) Reject H_0 when $\bar{X} > 10.5$.
 - (b) Reject H_0 when $\bar{X} > 11.5$.
5. Scores on a standardized test have a normal distribution with a variance of 100. It has recently been claimed that the variance of scores has increased. Given a sample of 30 scores with $s^2 = 110$ (where s^2 denotes the sample variance), test the hypothesis at a 5% significance level:

$$H_0 : \sigma^2 = 100$$

$$H_1 : \sigma^2 > 100$$