Econ 241A Probability, Statistics and Econometrics
Fall 2017

Problem Set 5

1. (from Goldberger) Let $\bar{X}$ and S^2 denote the sample mean and sample variance in random sampling, sample size 15, from a n$(10, 100)$ population. Find the probability of each of these events:

$$A = \{\bar{X} \leq 14.9\} \qquad B = \{5.1 \leq \bar{X} \leq 14.9\} \qquad C = \{S^2 \leq 92.04\}$$
$$D = B \cap C \qquad E = \{\sqrt{15}(\bar{X} - 10)/S \leq 1.746\} \qquad F = \{\bar{X} \leq 10 + 0.53S\}$$

   Note: You will need to use tables (or excel) for evaluating the cdf's of the normal distribution, the Student's t distribution and the Chi-squared distribution.

In addition, solve the following problems from Casella and Berger: 5.1, 5.3, 5.5, 5.11 and 5.15.