Time: 1 hr.   12/5/01

Math 207
Second Semester, 00-01
QUIZ II

1.From past experience, the management of a well-known fast-food restaurant estimates that the number of weekly customers at a particular location is normally distributed , with a mean of 5000 and a standard deviation of $800.

        a) What is the probability that on a given week the number of customers will be between 4760 and5800?

        b) What is the probability of a week with more than 6500 customers?

2. In a certain course, the set of final grades are normally distributed with a mean of 70 and a standard deviation of 12.

        c) Find the 85th percentile grade in this distribution.

        d) Find the percentage of grades below a grade of 60.

3.The population mean price for a new automobile is $16,012 (1991). Assume the population standard deviation is $4200 and that a sample of 100 new automobile purchases is selected. What is the probability that the sample mean for the100 purchases will be within $1000 of the population mean?

4. A simple random sample of 40 items resulted in a sample mean of 25.The population standard deviation is $\sigma = 5$.

        a) Compute the 95% confidence interval for the population mean.
What is the margin of error? What does it mean with regards to the accuracy of the estimate?

5.Ten thousand Instant Money (Tic-O-Tac) lottery tickets were sold. One ticket has a prize of $100 five tickets have $500 prizes each, 20 tickets have $100 prizes, 500 have $1 prizes each, and the rest are losers (no prize). Let x be the value (prize) of a ticket that you buy. Find the probability distribution of x.

6. A sample of 250 factory workers in a certain city were found to have mean annual income of $20,000 with a sample standard deviation of $2000. Compute the 90% confidence interval for the population mean.