

MATH 264 STATISTICS for SOCIAL SCIENCES

Final Examination

December 29, 2005

15:00-17:00

Surname : _____
Name : _____
ID # : _____
Department : _____
Section : _____
Instructor : _____

- The exam consists of 5 questions of different weights.
- Please read the questions carefully and write your answers under the corresponding questions. Be neat.
- Show all your work. Correct answers without sufficient explanation might not get full credit.

GOOD LUCK!

Please do not write below this line.

Q1	Q2	Q3	Q4	Q5	TOTAL
8	7	6	8	6	35

Question 1. The average number of pounds of meat that a person consumes a year is 218.4 pounds. Assume that the standard deviation is 25 pounds and the distribution is approximately normal.

(a) Find the probability that a person selected at random consumes less than 224 pounds per year.

(b) If a sample of 36 is selected find the probability that the mean of the sample will be less than 224 pounds per year.

Answer 1.

Question 2. A survey of 36 adults found that the mean age of a person's primary vehicle is 5.6 years. Assuming the standard deviation of the population is 0.8 year, find the 99% confidence interval of the population mean.

Answer 2.

Question 3. A survey of 175 students resulted in the data shown in the table below. The table shows the type of college the students attends and the income level of student's family.

	College		
Income	Private	Public	Total
High	15	10	25
Middle	25	55	80
Low	10	60	70
Total	50	125	175

Among these 175 students, one student is selected at random. For this randomly selected student, let A be the event of coming from a middle class family, and B be the event of attending a public college. Find

- (a) $P(A)$,
- (b) $P(B)$,
- (c) $P(A \cap B)$.
- (d) Are the events A and B independent? Justify your answer.

Answer 3.

Question 4. A couple has three children. Find probabilities of the following events:

- (a) all children are boys;
 - (b) all children are boys or all of them are girls;
 - (c) a family has exactly two boys or exactly two girls;
 - (d) a family has at least one child of each gender.
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Answer 4.

Question 5. A sample of 450 workers received an average weekly wage of \$ 500 and the variance of the wages is \$2500.

- a) At most how many workers will earn less than \$ 350 or more than \$650?
- b) At least how many workers will earn between \$ 350 and \$ 650 a week?

Answer 5.