

Not To Be Taken Out
Reserve Reading Room

Time: 2 hr.

June 18, 2001

MATH 207
Second Semester, 00-01
Final Exam

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- Instructions:** 1. Show your work in all the problems.
2. Give final answers correct to 2 decimal places.

1. John took 2 tests, one in history and one in political science. He scored 80 in each test. The means and standard deviations of the students' scores in the two tests are shown below:

	History	Political Science
\bar{x}	72	71
s	10	13

- a) Find the z-score corresponding to John's score in each of history and political science.
- b) In which of the two tests is John's relative standing better? Justify your answer.
2. A simple random sample of 61 items resulted in a sample mean of 42 and a sample standard deviation of 8. Compute the 90% confidence interval for the population mean.
3. A population has a mean of 110 and a standard deviation of 14.
- a) Describe the sampling distribution of the mean for random samples of size 49 (shape, mean, standard deviation.)
- b) What is the probability that the mean of a random sample of size 49 is smaller than 107?
4. For the following data set,

X	0	0	1	2	2	3
Y	5	4	2	3	1	1

- a) Find the linear correlation coefficient.
- a) Find the coefficient of determination and give its interpretation relative to the relationship between y and x.

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5. For the following data, one of the equations $\hat{y} = 2 + x$ or $\hat{y} = 1 + 1.2x$ is the equation of the regression line.

<u>x</u>	<u>y</u>
1	2
2	4
3	4
4	6

- Calculate SSE for each line whose equation is given.
- Using your results in (a), decide which equation given represents the regression line. Give a reason for your answer.

6. Scores of males on the SAT test in a certain year were normally distributed with a mean of 500 and a standard deviation of 100.

- What is the 85 percentile score?
- What percentage of students has scores more than 570?
- If 1000 students are randomly selected, how many are expected to score higher than 720?

7. For Americans, mean cheese consumption in 1995 was 27.3lb per person. For last year, the mean consumption for a random sample of 40 Americans is 28.1lb. At the 5% significance level, do the data provide sufficient evidence to conclude that cheese consumption for Americans last year increased over the 1995 mean? Use $\sigma = 6.9$ lb.

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