

Sample Quiz 1

January 25

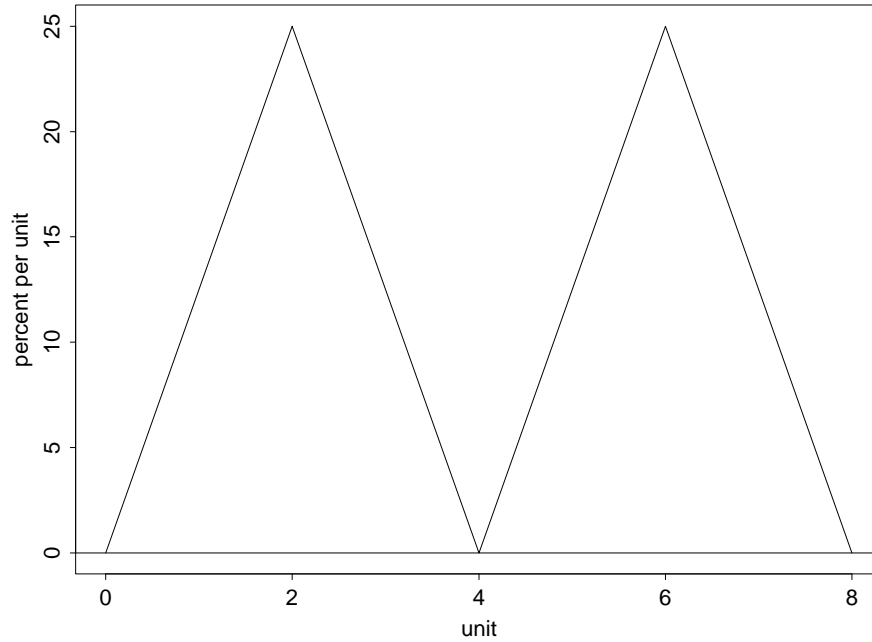
Your section: _____ Print your name: _____

Sign your name: _____

This is an open book exam. However, you are not allowed to pass any material (such as books, notes, or calculators) to each other. This quiz consists of *four problems* carrying 31 points. The maximum you can score is 25. You have 35 minutes. There is a lot of space provided, so try to show as much work as possible. All the best!

Problem 1. There are two kinds of Schools in Northern Ireland; Grammar Schools and Secondary Intermediate Schools. Before graduation, students in both types of schools take a Standard Proficiency Exam. At Grammar Schools, Catholic students do somewhat better in this exam than the Protestant students. At the Secondary Intermediate Schools too Catholics do somewhat better. True or False and explain: If you combine the results from both kinds of schools, the Catholic students must do somewhat better in the Proficiency Exam than the Protestant students.

Problem 2. (2+2+2+2 = 8 points)



- (a) What is the mean of the above histogram? What is the median ?
- (b) Find the 25'th percentile of the above histogram.
- (c) What is the interquartile range ?
- (d) Can you use the normal approximation for this histogram ?

Problem 3. (4+4+3=11 points)

- (a) If I have a list of two different numbers, how is the deviation of the first number from the average related to the deviation of the second number from the average ? How is the standard deviation related to the deviation of the larger of the two numbers from the average ? (Recall that the deviation of a number from the average is given by: number - average)
- (b) Twenty one people in a room have an average height of 5 feet 6 inches. A 22nd person enters the room. How tall would he have to be to raise the average height by 1 inch ?
- (c) The wages of employees in a firm go up by \$ 100. How does this change (i) the average wage (ii) the SD of the wages ?

Problem 4 The heights of men aged 18-74 in the HANES sample averaged 69 inches; the SD was 3 inches. Assuming that the histogram followed the normal curve, estimate the percentage of men with heights between 63 and 72 inches. Also estimate the height below which 25 % of the men in the HANES sample fall (use the normal table at the back of the book). (3+3=6 points)