Instructions: You need paper (lined if possible), a ruler and a pen or a pencil to write this quiz. You may answer the questions in any order you like. You should start each question on a new page. You must write your answers; typed answers will not be accepted. When you are finished answering the questions, please order the pages so your answers to question 1 are first, and then your answers to question 2. Then, in a single email message, send an image of each page to me at jburbirdg@uwaterloo.ca. Please put Econ 393, your name and your id number in the subject line of your email. The deadline for submitting your answers is 6:00 pm Tuesday June 2nd, Toronto time. The marks allocated to each question are shown in brackets.

1. (5 marks) Assume the voters in Kitchener-Waterloo (KW) all have one-dimensional political views that can be arrayed on a left-right spectrum. The citizen with the most extreme left-wing views is said to be at point 0 and the citizen with the most extreme right-wing views is said to be at point 2. The density function for political views is an isosceles triangle with a base of 2 and a height of 1. Next November voters will decide between two candidates, A and B. The election rules require that A and B state where they stand on the political spectrum and once they have chosen a position they cannot deviate from it. A coin was flipped and candidate A must state her position by October 20th. Candidate B has until October 30th to state her position. Voters always vote for the candidate whose stated position is nearest to their own views. (If there is a tie for nearest candidate, voters flip a coin to decide which to vote for.) Is there an equilibrium in this setting? If so, what is it? Defend your answer carefully.

2. Suppose a “town” comprises people uniformly distributed along a line 30 miles long, with 100 people per mile. Travel costs are 1 dollar per person per mile. There is one bowling alley located at mile 10 and another located at mile 20. All customers are willing to pay up to 15 dollars for a night of bowling. The mile-10 bowling alley is a little newer — the marginal cost of caring for a customer while at that bowling alley is 2 dollars. The marginal cost of caring for a customer at the mile-20 bowling alley is 4. Ignore the fixed costs of each bowling alley — set them equal to zero.

(a) (2 marks) Assume customers pay their own transport costs to the bowling alley and each bowling alley acts to maximize its profits. Calculate total consumers’ surplus and the total profits of the two bowling alleys.

(b) (3 marks) Now assume the bowling alleys pay transport costs for their customers, and again, each bowling alley acts to maximize its profits. As carefully as you can, draw: (i) a
graph of price against location; (ii) a graph of profit against location; and (iii) a graph of consumer’s surplus against location.

(c) (2 marks) What does “price discrimination” mean in this context?