

Urban Economics: EC 3381

National University of Singapore, Spring 2012

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Problem Set 2

(To be discussed in Week 5 and 6)

Question 1. Exercise 1.3.

Question 2. Consider the model in the slides "Cities in Space." Given the optimal solution for ℓ , show that it is worthwhile to have a z' -city ($z' < z$) in the middle between any two neighboring z -cities with distance ℓ . Determine the optimal value of z' . What is the economics behind the choice of z' ?

Question 3. Assume that there is one good that each consumer needs one unit of it (and not more). A mass of L consumers are uniformly distributed on the interval $[0, L]$ with density 1. Let two firms be located at the endpoints of $[0, L]$ interval (one at each side). Suppose there is a third firm to be placed in this interval. Find the point $x \in [0, L]$ such that if this third firm is placed at x , the total transport cost incurred for shipping this good to all consumers is minimized.

Question 4. Determine whether the market equilibrium in the Salop's spatial competition model (see slides) is indeed optimal? Hint: The social planner wants to determine optimal number of firms n to minimize total costs.

Question 5. Exercise 2.1, 3.1 and 3.2.