Homework 4

Problem 1

Jones and Smith live in the same apartment building. Jones loves to play his opera recordings so loudly that Smith can hear them. Smith hates opera. Jones receives $100 of benefits from his music and Smith suffers 0 of damages.

1. From an efficiency perspective, should Jones be allowed to play his opera CDs?
2. Suppose the apartment building does not have any rules about noise. Jones and Smith can bargain at zero cost. Will they reach an agreement where Jones gives up his beloved operas?
3. Now suppose the apartment building passes a rule that says residents are not allowed to play music their neighbors can hear if any of the neighbors object. As before, Jones and Smith can bargain at zero cost. Will Jones be allowed to play his music?

Homework 4

Problem 2

Suppose you are willing to pay $15 for one framed painting in your dorm room and $5 more for a second painting. Your roommate is willing to pay $10 for one painting and has no interest in a second painting.

1. Sketch your individual demand curve for paintings (a step function with maximum quantity of 2). Also sketch your roommate's demand curve for paintings.
2. Assume you have a divided room such that the paintings are private goods. Sketch the overall demand curve for paintings by both you and your roommate.
3. Instead assume the room is quite open such that each painting is a public good that both you and your roommate can enjoy. Sketch the new social benefit curve (the "market demand") for paintings.

Homework 4

Problem 3

There are 20 fish in a lake and 10 fishers who catch fish. There are two days and after the first day, whatever fish remain will double in number. The options are 1 (fish lightly) or 2 (fish intensely). On the first day each fisher gets 1 or 2 fish, based on this choice. On the second day the available fish are split evenly among all fishers. For example, if 4 fishers choose to fish lightly and 6 choose to fish heavily, then the 4 remaining fish will double to 8 and these are split evenly on the second day. Fishers who fish lightly end with $1 + \frac{8}{10} = 1.8$, while fishers that fish heavily end with $2 + \frac{8}{10} = 2.8$.

1. Collectively, what should the fishers do to maximize total number of fish caught by all fishers over the span of the two days? How many fish will each fisher get?

2. Josh is one of the fishers. What should he do if he knows all the other 9 fishers are fishing lightly on the first day? How many fish will he end up with?

3. What will Josh do if he knows all the other 9 fishers are fishing intensely on the first day? How many fish will he end up with? What is the new total for all fishers combined?

4. Is there ever a situation in which it is better for an individual fisher to fish lightly on the first day?

Homework 4

Problem 4

A college campus must decide whether to spend $40,000 to clear sidewalks of snow during the winter. There are 4,000 students in this college. 1,000 of these students would be willing to pay up to $30 each to walk on a snowless sidewalk. The other 3,000 are willing to pay $8 each.

1. In terms of efficiency, should the University pay $40,000 to keep snow off of the sidewalks?

2. Suppose the university added a $10 fee in order to cover the cost. This would raise the $40,000 necessary but it may make many students upset: What would happen if the decision to clear snow were put up for a university-wide vote?

3. A university administrator proposes the following: The 3,000 students willing to pay $8 must in fact pay $8 each. This raises $24,000. The students willing to pay $40 only have to pay $16 each (for $16,000 more, for a total of $40,000). Why might this policy not work in practice?