Problem Set Eight

Name _____

Chapter 11

3. Suppose the supply curve of boom box rentals on Golden State Park is given by $P = 5 + 0.1\ Q$, where P is the daily rent per unit in dollars and Q is the number of units rented in hundreds per day. The demand curve for boom boxes is $P = 20 - 0.2\ Q$. If each boom box imposes $3 per day in noise costs on others, by how much will the equilibrium number of boom boxes rented exceed the socially optimal number?

4. Refer to Problem 3. How would the imposition of a tax of $3 per unit on each daily boom box rental affect efficiency in this market?

5. Suppose the law says that Jones may not emit smoke from his factory unless he gets permission from Smith, who lives downwind. If the relevant costs and benefits of filtering the smoke from Jones's production process are as shown in the following table, and if Jones and Smith can negotiate with one another at no cost, will Jones emit smoke?

	Jones emits smoke	**Jones does not emit smoke**
Surplus for Jones	$200	$160
Surplus for Smith	400	420

6. John and Karl can live together in a two-bedroom apartment for $500 per month, or each can rent a single-bedroom apartment for $350 per month. Aside from the rent, the two would be indifferent between living together and living separately, except for one problem: John leaves dirty dishes in the sink every night. Karl would be willing to pay up to $175 per month to avoid John's dirty dishes. John, for his part, would ne willing to pay up to $225 to be able to continue his sloppiness. Should John and Karl live together? If they do, will there by dirty dishes in the sink? Explain.

7. How, if at all, would your answer to Problem 6 differ if John would be willing to pay up to $30 per month to avoid giving up his privacy by sharing quarters with Karl?

10. A village has six residents, each of whom has accumulated savings of $100. Each villager can use this money either to buy a government bond that pays 15 percent interest per year or to buy a year-old llama, send it onto the commons to graze, and sell it after one year. The price the villager gets for the 2-year-old llama depends on the quality of the fleece it grows while grazing on the commons. That in turn depends on the animal's access to grazing, which depends on the number of llamas sent to the commons, as shown in the following table:

Number of llamas on the commons	**Price per 2-year-old llama ($)**
1	122
2	118
3	116
4	114
5	112
6	109

The villagers make their investment decisions one after another, and their decisions are public.

a. If each villager decides individually how to invest, how many llamas will be sent onto the commons, and what will be the resulting total village income (from llamas and from bonds)?

b. What is the socially optimal number of llamas for this village? Why is that different from the actual number? What would be total village income be if the socially optimal number of llamas were sent to the commons?

c. The village committee votes to auction the right to graze llamas on the commons to the highest bidder. Assuming villagers can both borrow and lend at 15 percent annual interest, how much will the right sell for at auction? How will the new owner use the right (how many llamas will graze on the commons), and what will be the resulting total village income?

On my honor, as an Aggie, I have neither given nor received unauthorized aid on this assignment.

Signature _____