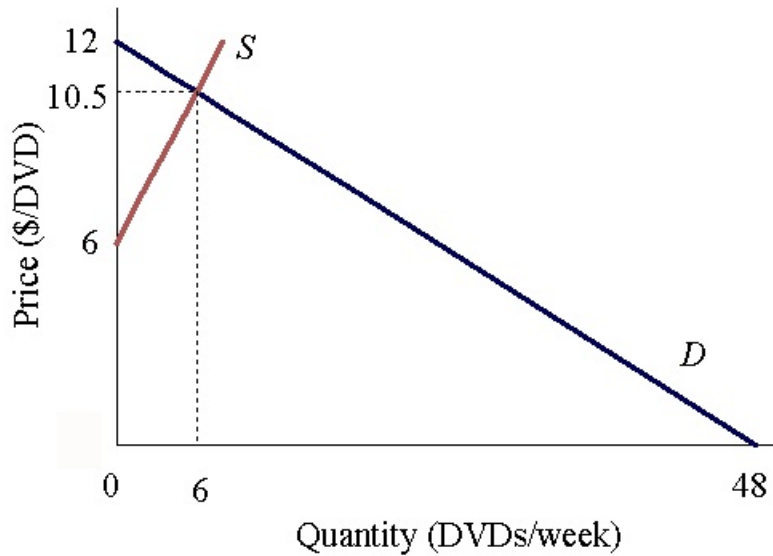


## Problem Set Five

Name \_\_\_\_\_

### Chapter 7

1. Suppose the weekly demand and supply curves for used DVDs in Lincoln, Nebraska, are shown in the diagram. Calculate and **graph**:

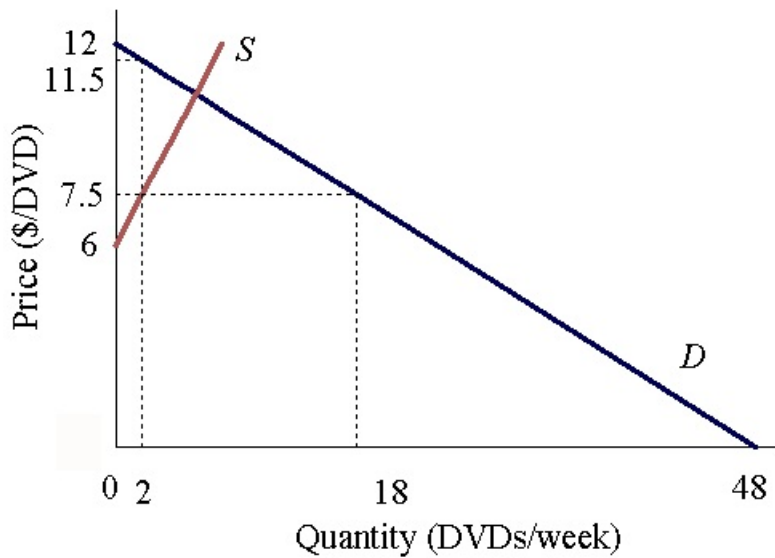


a. The weekly consumer surplus.

b. The weekly producer surplus.

c. The maximum weekly amount that producers and consumers in Lincoln (as a group) would be willing to pay to be able to buy and sell used DVDs in any given week.

2. Refer to Problem 1. Suppose a coalition of students from Lincoln High School succeeds in persuading the local government to impose a price ceiling of \$7.50 on used DVDs, on the grounds that local suppliers are taking advantage of teenagers by charging exorbitant prices.



- a. Calculate the weekly shortage of used DVDs that will result from this policy.
- b. Calculate and **graph** the total economic surplus lost every week as a result of the price ceiling.

3. The Kubak crystal caves are renowned for their stalactites and stalagmites. The warden of the caves offers a tour each afternoon at 2pm sharp. The caves can be shown to only four people per day without disturbing their fragile ecology. Occasionally, however, more than four people want to see the caves on the same day. The following schedule lists the people who wanted to see the caves on September 24, 2003, together with their respective times of arrival and reservation prices for taking the tour that day.

	Arrival time	Reservation price (\$)
Hermann	1:48	20
Jon	1:50	14
Kate	1:53	30
Jack	1:56	15
Penny	1:57	40
Fran	1:59	12
Faith	2:00	17

a. If the tour is “free” and the warden operates on a first-come, first-served basis, what will the total consumer surplus be for the four people who get to go on the tour that day?

b. Suppose the warden solicits volunteers to postpone their tour by offering increasing amounts of cash compensation until only four people still wish to see the caves that day. If he gives each volunteer the same compensation payment, how much money will he have to offer to generate the required number of volunteers? What is the total economic surplus under this policy?

c. Why is the compensation policy more efficient than the first-come, first-served policy?

d. Describe a way of financing the warden’s compensation payments that will make everyone, including the warden, either better off or no worse off than under the first-come, first-served approach.

4. Suppose the weekly demand for a certain good, in thousands of units, is given by the equation  $P = 8 - Q$ , and the weekly supply is given by the equation  $P = 2 + Q$ , where  $P$  is the price in dollars.

a. What is the equilibrium price and quantity? Calculate and **graph** consumer surplus, producer surplus, and the total weekly economic surplus generated at the market equilibrium.

b. Suppose a per-unit tax of \$2, to be collected from sellers, is imposed on this market. Find the new price and quantity. How much government revenue will this tax generate each week? Calculate and **graph** the direct loss in economic surplus experienced by participants in this market as a result of the tax.

5. Is a company's producer surplus the same as its profit? (Hint: A company's total cost is equal to the sum of all marginal costs incurred in producing its output, plus any fixed costs.)

6. In Charlotte, North Carolina, citizens can get their electric power from two sources: a hydroelectric generator and a coal-fired steam generator. The hydroelectric generator can supply up to 100 units of power per day at a constant marginal cost of one cent per unit. The steam generator can supply any additional power that is needed at a constant marginal cost of 10 cents per unit. When electricity costs 10 cents per unit, residents of Charlotte demand 200 units per day.

a. Draw the marginal cost curve of electric power production in Charlotte.

b. How much should the city charge for electric power? Explain. Should it charge the same price for a family whose power comes from the hydroelectric generator as it does for a family whose power comes from the steam generator?

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

Signature \_\_\_\_\_