

**Economics 100A**  
**Fall 2001**

**Microeconomic Analysis**  
**PROBLEM SET 6**

1. Sheri's demand curve for apples is:  $Q = 10 - 2P$ , where Q is the pounds of apples per week, and P is the price per pound of apples.
  - (1) if the price of apples is \$3 per pound, what is Sheri's consumer surplus?
  - (2) if the price goes down to \$2 per pound, what is the change in consumer surplus?
2. Suppose that the inverse demand function for wool is  $P = \frac{A}{q}$  for some constant A.

Suppose that 1/4 of the world's wool is produced in Australia. If Australian wool production increases by 1% and the rest of the world holds its output constant, what will be the effect on the world price of wool?
3. Jerry's monthly income is \$1000. He spends 40% of his income on food and the rest on all other goods. The City Council thinks it is unfair that people spend more than 35% of their income for food. In order to lower the proportion of income going to food, the City Council gives Jerry \$200. If Jerry's income elasticity of food is 2, will the City Council accomplish its goal? Explain.
4. Andrew's demand for fish is:  $Q_A = 12 - 3P$ . Betty's demand for fish is:  $Q_B = 16 - 4P$ . Cathy's demand for fish is:  $Q_C = 20 - 5P$ . Where Q is the pounds of fish, P is the price of fish per pound.
  - (1) Graph each person's demand curve.
  - (2) If Andrew, Betty and Cathy are the only people living in Adia Village, what is the total market demand for fish in Adia Village? Give the equation and graph the total demand curve.

(3) A neighbor village, Bdia, always catches more fish than it can consume. Since the location is extremely good, the cost for Bdia to catch fish is zero. Bdia always shares fish with Adia, allowing Adians to take as many fish as they want for free. However, for some reasons Bdia decides to charge Adians \$1 on each pound of fish from next year.

- (a) How will Adia's social surplus change next year compared to before?
- (b) How much will Bdia gain in revenue from the charge next year?
- (c) What is the deadweight loss next year?

5. Suppose the market demand for cigarettes is:  $D = 10 - P$ , and the supply of cigarettes is:  $S = -2 + P$ , where  $P$  is the price per pack of cigarettes. If the government imposes a cigarette tax of \$1 per pack,

- (1) what is the price paid by consumers? What is the price faced by suppliers?
- (2) What is the government revenue from the tax?
- (3) How much is consumers' tax burden?
- (4) How much is producers' tax burden?
- (5) What is the deadweight loss of the tax?