

Econ 6401 – Fall 2007
Final Exam – Dr. Rupp
 $E_p = \partial Q / \partial P * P / Q$

Name _____

Pledge (sign) _____
“I have neither given nor received assistance on this exam”

		Column		
		X	Y	Z
A		4,2	8,2	2,3
Row	B	3,5	6,7	1,4
C		0,9	-1,3	5,5

1. Find all equilibria strategies (both pure and mixed) of the following game & identify the strongest equilibrium concept it satisfies.

2. A perfectly competitive firm has a short-run production function given by: $Q = 10\sqrt{L}$. The price of the final product is \$2 and the wage rate is \$4. What is the profit maximizing output? How much labor will it use?

3. If the demand for widgets is: $Q^D = 10 - 2P$ and the supply of widgets is: $Q^S = -2 + 2P$,
(A) Find the equilibrium price and quantity.

(B) Suppose the government imposes a \$1 tax on the sellers. Find the new equilibrium price that the buyers pay and quantity after the tax. How much revenue is raised from the tax?

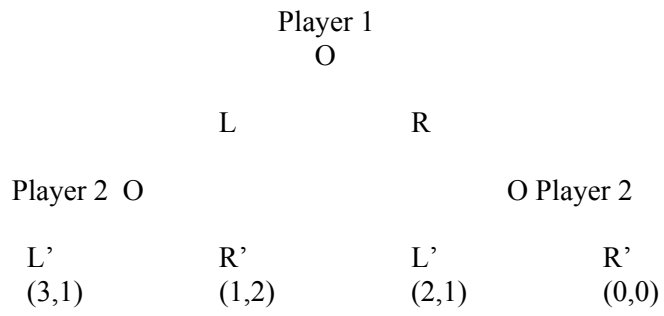
(C) Sketch the new equilibrium **after the \$1 tax** below clearly illustrate on the graph the following areas:

- Tax revenue (after the tax)
- Consumer surplus (after the tax)
- Producer surplus (after the tax)
- Deadweight loss (after the tax)

P

_____ Q

4. A. Use the following game tree to write the normal form game:



B. Find all Nash Equilibria strategies of the game above.

C. Find the subgame perfect equilibrium strategy of the above game.

5. There are 10 identical firms in the textbook industry. Each has the same short-run marginal cost of: $SMC = 4 + 2Q$. The demand curve for textbooks is: $P = 22 - Q$

A. Find the market supply curve.

B. Graph the market supply curve and market demand curve on one graph below. ***Label all axes & curves!***

C. On the graph above, pin stripe the consumer surplus region & lightly shade the producer surplus.

D. How much is the consumer surplus? How much is the producer surplus?

6. An individual utility is: $U = 2XY$. Income is \$120, $P_x = \$2$, $P_y = \$4$. If price of X rises to $P_x = \$3$.

a. Calculate the total effect on good X from this price increase.

b. Determine the substitution effect on good X from this price increase.

c. Determine the income effect on good X from this price increase.

d. Show the total effect, substitution effect, and income effect on the graph below:

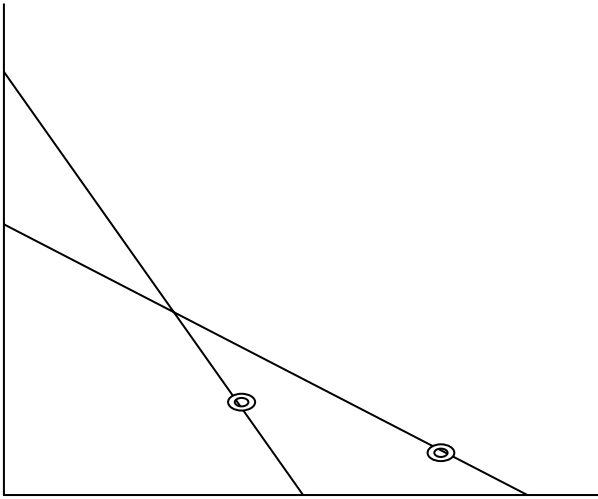
Y

_____ X

7. In each case below, the consumer chooses bundle “A” under income constraint I_1 , and chooses bundle “B” under income constraint I_2 .

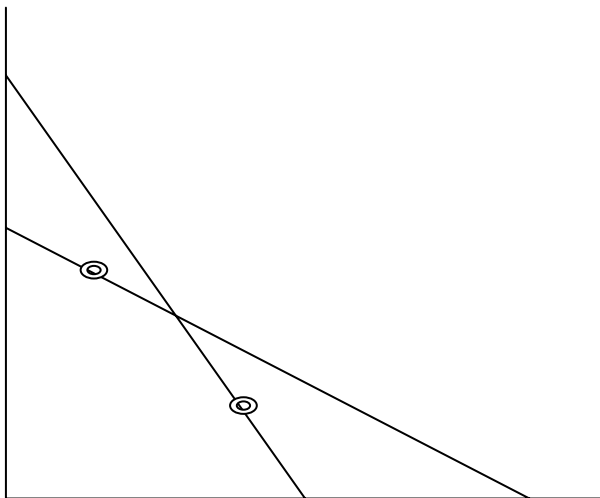
Case 1

- (a) Are these choices consistent or inconsistent with utility-maximizing behavior?
- (b) How does the consumer rank the two bundles (A and B) in Case 1?



Case 2:

- (a) Are these choices consistent or inconsistent with utility-maximizing behavior?
- (b) How does the consumer rank the two bundles (A and B) in Case 2?



8. A perfectly competitive constant cost industry that is initially in long-run equilibrium has some government regulations imposed on it that raises each firm's fixed costs of operation.

a. How will this regulation affect the industry in the short-run and long-run?

b. In the long-run who bears the burden of this regulation?

c. What difference would it make if the regulation raised marginal costs of production instead of fixed costs?

9. A perfectly price discriminating monopolist has demand: $P = 100 - 9Q$ and $MC = Q$.

a. How much does the perfectly price discriminating monopolist produce?

b. If fixed costs are zero, show the profit on a graph below for the perfectly price discriminating monopolist.

P

_____ Q

c. How much profit does the perfectly price discriminating monopolist earn?

d. How much is the deadweight loss from this perfectly price discriminating monopolist?

10. Jackson has utility function: $U = X^{0.5}Y^{0.5}$ and $P_x = \$2$ and $P_y = \$1$ with $M = \$100$.

a. Find the ordinary (Marshallian) demand functions for X and Y.

b. Find the indirect utility function for Jackson.

c. Derive Jackson's expenditure function.

d. Calculate the change in Jackson's welfare using the compensating variation (CV) measure when the P_x falls to \$1.