

Economics 3550
Intermediate Microeconomics
Professor Rous
Mid-Term Exam 2
October 29-30, 2003

Name _____
Clearly label all graphs for full credit and
please write legibly; I cannot grade what I
cannot read.

Number of points each question is worth in parentheses.

- 1.(6) You currently eat 4 tacos and 6 hamburgers per week. The price of Tacos is \$2 and the price of hamburgers is \$4. Given your current consumption bundle, the marginal utility of tacos is 12 and the marginal utility of hamburgers is 16.

Are you currently maximizing utility? If not, how do you know, and what should you do about it (more tacos and fewer hamburgers, more hamburgers and fewer tacos, etc)?

2. Say your income is \$420, the price of shirts is \$15 and the price of the composite commodity is \$1.

a.(5) Draw the budget constraint for shirts below.



b.(5) Assuming you spend $\frac{1}{2}$ your income on shirts, draw in an appropriate utility maximizing indifference curve.

c.(12) Now let the price of shirts drop to \$10. Assuming shirts are **inferior, non-Giffin** goods, draw in the new utility maximizing bundle (you no longer necessarily spend $\frac{1}{2}$ your income on shirts). Also demonstrate the income and substitution effects.

d.(5) How would you have placed the optimal bundle differently if shirts were normal goods?

e.(7) Now draw a demand curve for shirts consistent with the above diagram. Make sure to label all relevant features.



3.(6) True/False/It depends: The substitution effect always has the opposite sign as the price change. Explain.

4. Assume the Todd-O-Matic Company has the following Demand and Total Cost structure. (Hint: use the extra columns to get the information you need to answer the question).

Demand			Total Cost				
P	Q			Q	TC		
				0	100		
100	1			1	130		
95	2			2	170		
90	3			3	225		
85	4			4	295		
80	5			5	385		
75	6			6	495		

a.(8) What is the profit maximizing level of output this firm should produce?

Say fixed cost includes the amount paid to a security company to patrol the factory at night. Further assume the security company has increased its fee by \$50.

b.(6) How will the higher security costs affect the profit maximizing level of output in the short run?

c.(6) Does your answer change if there is a clause in the contract that states it is possible to end the security contract if the company goes out of business? Explain.

5.(7) The Denton Town council wants to have more ice cream cones sold in town by street vendors. There are two plans under consideration. The first would lower the annual licensing fee from \$300 to \$100 and the second would repeal the \$.05 per cone excise tax on ice cream cones. Which plan is likely to lead to increased sales of ice cream cones in the short run? Explain.

6. Assume the Acme Company has the following production function:
 $Q = (25K * L)^{.5}$ and they are currently using 100 units of K in the short run.
Say the price of labor is 50 and the price of capital is 200.

a.(6) What is the Acme company's average variable cost function (with AVC as solely a function of Q).

b.(6) If they are using 20 units of labor, what is their $MRTS_{LK}$ (you can use calculus, but you do not have to)?

7. (7) The Barkco Company has been producing with $K = 50$ and $L = 25$. With these inputs, the $MRTS_{LK}$ is 1.5. Let the price of labor be 80 and the price of capital be 40.

Assuming output stays the same, what is the cost and benefit of hiring one more laborer?

For partial credit (up to 5 points): If you do not know that, can you explain whether the firm would be better off with more K and less L or more L and less K?

8. (8) Define/Explain the “Expansion Path”