

ECONOMICS 1 (Lecture1)
PROBLEM SET #2

Due in your last section in the week of February 15

1. Jasmine is willing to pay \$12 for the first lamp that she purchases each year, \$11 for the second, \$10 for the third, and so on down to \$1 for the twelfth and nothing for the thirteenth. The market price is \$5.25.
 - a) **How many** lamps will she buy? (she can't buy fractions of a lamp) **How much** does she spend on those lamps? **What is** the maximum amount she would have been willing to pay for them?
 - b) The next year, the price of lamps drops to \$1.75. **How many** lamps does she buy now? **What happened** to her consumer surplus?
 - c) **Provide** an intuitive explanation for the concept of consumer surplus, and why it is often used as measure of welfare.

1. Let's explore how you can use Econ 1 for important policy issues: in this case, drug use. You are the President's "drug czar", and he gives you two suggestions for accomplishing your goal (a large reduction in drug use among young people) The first is to legalize drugs and put a tax on them. The second is to mount an effective treatment program for addicted individuals. **Your job** is to decide which policy is more likely to succeed, and **explain** your analysis. (Hint: **make** assumptions about the price elasticity of drug users' demand, then **use** graphs. You can model the supply of drugs as a generic 45 degree curve. One way to think of a tax is as an increase in costs for the producer.

2. Using the definitions of the different types of costs, **fill** the missing entries in the following table, and **use a graph** to illustrate the results.

<u>Quantity (Q)</u>	<u>Fixed Cost (FC)</u>	<u>Variable Cost (VC)</u>	<u>Total Cost (TC)</u>	<u>Marginal Cost (MC)</u>	<u>Average Cost (AC)</u>
0			500		
1				125	
2					350
3		325			
4			1000		
5				250	
6					325

1. You decide to open a burrito shop. You then lease a restaurant space on Bancroft, and buy all the necessary kitchen stuff (all completely worthless after a year's use): you have spent \$1200 before cooking a single burrito. Hiring a single burrito-engineer (cook) would mean a total production of 1000 burritos for the year. Hiring the second one means an additional 900 burritos, the third one 800 more, and so on, until the

eleventh one, whose presence (even though he *does* work) adds *no* burritos at all to the total production. The competitive price for burritos is \$2, and the competitive wage paid to burrito-engineers is \$1300 a year.

- a) **Graph** the relationship between the number of additional burritos and cooks. (be sure to correctly label everything) **What** do you call this curve? **Is it possible** for all cooks to have exactly the same skills? **Explain** why or why not.
 - b) **Draw** another curve (again, be careful with labels) which illustrates the value of this production to you (the burrito shop owner) **What** do you call this curve? **How many** cooks will you choose to hire? (you can't hire half a cook)
 - c) **How much** profits will you make that year? Bonus (don't ask) question: if you are at least as skilled as the cooks you have hired, **was it a good idea** to start this business?
5. Let's say you have a GPA of A after your first (very keen) semester at CAL. Second (over-confident) semester, you get all Cs. **What happens** to your GPA? Third and fourth (some soul-searching) semesters, you get all Bs. **What has happened** to your GPA during the second year? **Why**? Third (you have achieved zen wisdom) year, you get all As again, and your GPA now ... **Of which economic concepts** should this little story remind you? (**illustrate** your answer with a graph)
6. You start a new business (Mexican food is out of fashion) selling japanese onigiris (little stuffed rice triangles), and your only fixed cost is renting the trailer (\$110 a week) You calculate the following (weekly) total cost figures:

Qu.	100	200	300	400	500	600	700	800	900	1000	1100	1200
TC	210	300	370	400	420	430	490	560	640	740	850	1000

- a) **compute** average (AC) and marginal (MC) costs to 2 decimal points (pennies!)
 - b) **show** MC and AC on a graph.
 - c) The number of trailers selling onigiris is fixed (Berkeley permits), but the market is otherwise perfectly competitive, with a price of \$1.00. **What is** your profit-maximizing output? **Explain**.
 - d) **Why** would producing one more or one less onigiri lower your profits?
 - e) **Calculate** that profit.
 - f) If the permit restriction is lifted, **what will happen** to the number of firms (anyone can rent a trailer and prepare onigiris at the same price)? To the **market price**? To your **profits**? **Explain**.
 - g) **Re-tell** the above story, pointing some real-world conditions that might change it.
5. True **or** false? **Explain**.
- a) A firm produces the quantity which maximizes total revenue minus total costs, not the quantity at which marginal revenue equals marginal costs.
 - b) Individual firms in perfect competition face flat demand curves (perfectly inelastic)
 - c) A change in fixed cost might affect a firm's decision to produce or not but would not affect its profit-maximizing output.
 - d) There are no fixed costs in the long run.

- e) Bonus (still can't ask) question: It is possible to have diminishing marginal returns to all inputs, but constant returns to scale overall.