Principles of Microeconomics
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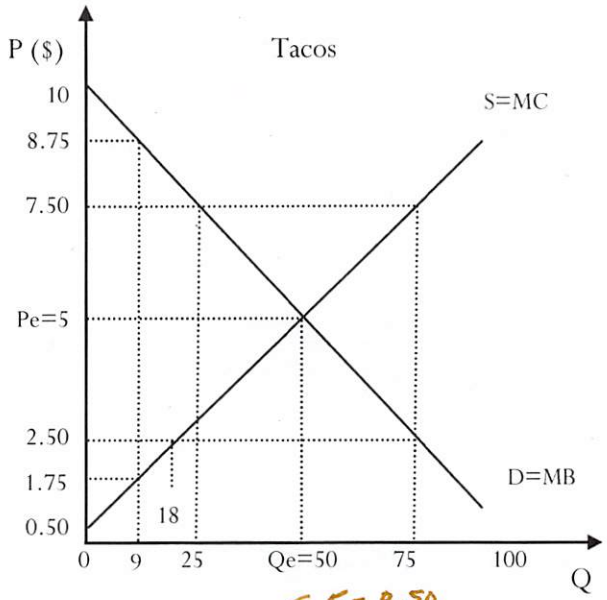
key

PROBLEM SET 5
ch. 7, economic efficiency

v26-2

Instructions: These problems address economic efficiency, found in ch. 7, and related lecture material.

1. The graph illustrates the taco market in Charleston. Answer the following questions based on the information provided in the graph.
   a. Generally, how do we find the benefit from consuming a particular taco? height of D (MB) curve
   b. How much marginal benefit does the consumption of the 9th taco provide? $8.75
   c. Generally, how do we find the cost of producing a particular taco? height of S (MC) curve
   d. What is the marginal cost of producing the 9th taco? $1.75



2. How many taco transactions will take place at each of these prices? $8.75, $7.50, $5.00, $2.50, $1.75
   At which price is the number of transactions *maximized*? $5
   9 25 50 18 9
3. Assuming tacos are selling for the equilibrium price (Pe, $5), calculate the producer surplus (PS, or profit) and consumer surplus (CS) from selling the equilibrium quantity (Qe). Hint: The area of a triangle = ½ * b * h

   5 - 0.50
   $PS = \frac{1}{2}(50)(4.50) = \$112.50$
   $CS = \frac{1}{2}(50)(5) = \$125.00$
   10 - 5

4. Calculate the *total cost* of producing the market equilibrium quantity (Qe) of tacos, which is 50 in this example. (Hint: You want to calculate the value of the shape below the supply curve up to Qe. One way to do this is to subtract PS (calculated in (3)) from the total revenue (Pe*Qe) of producing 50 tacos.) $Pe \cdot Qe = 5 \cdot 50 = 250.00$
   -112.50
   $\$137.50$

5. The table illustrates the marginal cost of producing beer by the keg. Three Charleston producers are shown in the table. Use the table to answer the questions below.
   a. Suppose Charleston has a 'beer czar' who assigns production quantities to breweries to minimize the total cost of producing a particular total amount of beer. If the czar wants 12 kegs produced this week, how much should each brewery be assigned to produce?
   Munkle: 5 Palmetto: 3 Revelry: 4

Kegs of Beer	Munkle MC	Palmetto MC	Revelry MC
1	60	50	55
2	63	60	60
3	65	70	65
4	68	80	70
5	70	90	75
6	73	100	80
7	75	110	85
8	78	120	90

   b. Even though the table does not show the *total cost* of producing 12 kegs, how can the czar be assured that the TC is, in fact, minimized for 12 kegs? (In other words, what's the TC minimizing rule for production?) $MC_M = MC_P = MC_R$
   MC for all brewers are the same.

6. If instead of 12 kegs, the czar wants 16 kegs produced because they expect a lot of tourists in town this weekend, what would be the best way to assign the production? Munkle: 8 Palmetto: 3 Revelry: 5

7. Now assume there is a free market for beer, and the price per keg is $70.
   a. How much beer would each brewery produce? Munkle: 5 Palmetto: 3 Revelry: 4
   b. What can you say about the TC of producing this number of kegs, when the breweries choose to produce the amounts above? It's minimized, again since the MC of all producers is the same.