

Finance 510 Midterm #1 Practice Questions

- 1) Suppose that we have the following observations of consumer behavior:

There are two products available to purchase: Cheeseburgers and Milkshakes

Observation #1: When the price of cheeseburgers was \$4 and the price of milkshakes was \$2, an individual purchased 5 cheeseburgers and 4 milkshakes.

Observation #2: When the price of cheeseburgers was \$3 and the price of milkshakes was \$3, an individual purchased 4 cheeseburgers and 5 milkshakes.

Are these two observations consistent with a rational choice?

- 2) Suppose that you have estimated the following demand curve:

$$Q = 125 - 4.5P + .01I$$

Where I represents income and P is price.

- a) Suppose that average income is equal to \$25,000. Calculate the price elasticity of demand at $P = \$65$. If you were a revenue maximizing firm, would it be optimal to charge a price of \$65?
 - b) Suppose that this market is supplied by perfectly competitive firms with a constant marginal cost of \$30 and no fixed costs. Calculate total market sales. Calculate consumer surplus. What would firm profits be?
 - c) Now, suppose that, instead, this market was serviced by a monopolist with constant marginal costs equal to 30 and no fixed costs. Repeat part (b).
- 3) Microeconomics focuses on two primary players: consumers and firms. Both of these players are solving optimization problems.
- a) Briefly, explain the problem that each economic player faces.
 - b) Briefly describe the logic behind the solution process.
 - c) In what ways are these problems similar? Are there any important differences?

4) Consider the following two industries:

Industry A		Industry B	
Firm	Market Share	Firm	Market Share
1	60	1	25
2	10	2	25
3	5	3	25
4	5	4	25

Note: Industry A has an additional 4 firms with a market share of 5% each.

- Calculate the CR(3) for each industry (the concentration ratio of the top 3 firms)
 - Calculate the HHI index of the two industries.
 - Why are the two measures different?
 - In which industry would you expect a higher markup over cost?
- 5) Suppose that the price of good X is \$6 and the price of good Y is \$2. You have \$140 to spend and your preferences over X and Y are defined as

$$U(x, y) = x^{\frac{3}{4}} y^{\frac{1}{4}}$$

- Calculate the marginal utility of X (remember, this is the change in utility resulting from a slight increase in consumption of X)
 - Calculate the marginal utility of Y.
 - Calculate the marginal rate of substitution. What does the marginal rate of substitution measure?
 - Suppose that you chose to consume 10 units of X, 40 units of Y. Is this an optimal choice at the current prices? Explain.
 - If the answer to (d) is no, calculate your optimal choice of X and Y.
- 6) Suppose that you have the following technology for producing output.

$$y = k^{\frac{1}{2}} l^{\frac{1}{2}}$$

The price of labor is \$7 per hour and capital costs \$150 per unit. You are currently using 64 units of capital. You need to produce 100 units of output.

- a) Assuming that you cannot adjust your capital stock, how much labor will you need to match your output goal?
- b) Calculate your total cost of production.
- c) Calculate your average (unit) cost.
- d) Calculate your expenditure shares for capital and labor (i.e. what percentage of your costs are labor costs, what percent are capital costs?)
- e) Now, suppose that you are allowed to adjust your capital stock as well as labor to meet your output target. Would you choose to increase your capital stock or lower it? Explain.