

Exam 2 Review Questions

1. Suppose Gus is a taxi cab driver. Assume the taxi cab industry is perfectly competitive and a constant cost industry.
 - a. What characteristics are present in a perfectly competitive industry?
 - b. What is a constant cost industry? What assumptions are being made when we assume a constant cost industry?
 - c. For each scenario below indicate the SHORT and LONG run effects on (1) the market price, (2) the industry quantity of cab rides, and (3) the number of Gus's cab rides.
 - i. Gus realizes that he owes \$2,000 in back taxes.
 - ii. A fire destroys half the cabs in town, but not Gus's.
 - iii. The city imposes a \$1 tax on cab rides.
 - iv. The city imposes a \$100 annual license fee on cabs.

2. You manage a sugar beet operation where the only variable input is fertilizer. The following table describes the cost relationships associated with various units of fertilizer used to produce sugar beets on a single acre of land. Assume the equilibrium price of sugar beets is currently \$60 per ton.

Fertilizer (units per acre)	Production (tons per acre)	MPP	APP	TFC (\$ per acre)	TVC (\$ per acre)	TC (\$ per acre)	TR (\$ per acre)	MC (\$)	MR (\$)
0	16.00			1,200	0				
1	24.75			1,200	48				
2	25.90			1,200	96				
3	26.70			1,200	144				
4	27.00			1,200	192				
5	26.50			1,200	240				

- a. Fill in the missing values for MPP (Marginal Physical Product) and APP (Average Physical Product) in the table above. Comment on the shape of MPP and APP. (*Note: MPP is additional production of sugar beets per additional unit of fertilizer*)
- b. Fill in the remaining values on the table above.
- c. How many units of fertilizer should be applied to each acre of land if your goal is to maximize profits?
- d. Does part (c) refer to a short-run or long-run decision? Explain.
- e. How much profit/acre is produced at the profit maximizing level?

- f. Suppose the world sugar production increases which cause the price of sugar beets to decrease to \$41.75 per ton. How many units of fertilizer should be applied to each are of land, given profit maximization is your objective?
 - g. Given the new lower price in part (f), what would you expect to occur in the long run? Will firms exit or enter the industry? Will this impact the long run supply curve? How will this impact equilibrium price and quantity in the long run?
3. A firm faces the following total product curves depending on how much capital it employs:
- a. Suppose that the firm currently employs 1 unit of capital and 3 units of labor. Compute MRTS, MPL, and MPK.
 - b. Suppose that the firm currently employs 2 units of capital. The price of capital is \$4 per unit and the price of labor is \$10 per unit. What is the short-run total cost of producing 263 units of output? What is the long-run total cost of producing 263 units of output?
 - c. Suppose that the price of capital increases to \$20 per unit and the price of labor falls to \$5 per unit. Now what is the long-run total cost of producing 263 units of output?
 - d. Beginning with 1 unit of capital and 2 units of labor, does this production function exhibit increasing, constant, or decreasing returns to scale? Is the slope of the long-run average cost curve positive, negative, or constant?