

**Micro Unit 3 Problem Set Question -Modified by Michael Lin**

**2. Explain an example that demonstrates the “real world” application of each of the following. Define the terms in your own words and use examples that clearly demonstrate your understanding of each concept.**

- a. Marginal product and the Law of Diminishing Marginal Returns (\_\_\_/4)
- b. Fixed Costs and Variable Costs (\_\_\_/4)
- c. Total Cost and Average Total Cost (\_\_\_/4)
- d. Accounting Profit and Economic Profit (\_\_\_/4)
- e. Economies of Scale and Diseconomies of Scale (\_\_\_/4)

**4. Use the demand schedule for a perfectly competitive firm to complete the following:**

Price	Quantity Demanded	Total Revenue	Marginal Revenue
\$4	0		
\$4	1		
\$4	2		
\$4	3		
\$4	4		
\$4	5		

- a. Calculate total revenue and marginal revenue. (\_\_\_/2)
- b. Graph the demand and marginal revenue curves for this firm. (\_\_\_/1)
- c. Explain why this firm must charge \$4 (\_\_\_/1)

**5. Consider the total cost and total revenue given in the following table for Tommy’s Belt Company.**

Quantity	0	1	2	3	4	5	6	7
Total Cost	\$4	\$6	\$7	\$9	\$13	\$19	\$26	\$37
Total Revenue	\$0	\$8	\$16	\$24	\$32	\$40	\$48	\$56

- a. Calculate the profit for each quantity. (\_\_\_/1)
- b. How can you tell that this firm is in a perfectly competitive market? (\_\_\_/1)
- c. What is the profit maximizing quantity? (\_\_\_/1)
- d. Calculate the marginal revenue for each quantity. (\_\_\_/1)
- e. Calculate the marginal cost for each quantity (\_\_\_/1)
- f. Use marginal analysis to explain why this firm should produce the quantity you identified in part “c.”

**6. Refer to the table provided. The price is equal to \$14.**

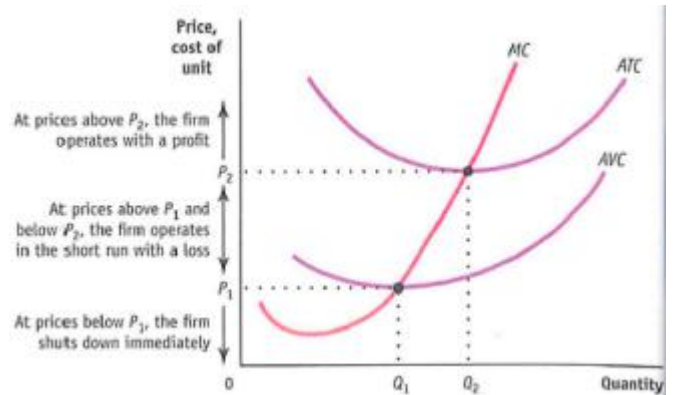
Quantity of	Variable Cost	Total Cost	Marginal Cost

Potatoes (Bushels)	(VC)	(TC)	(MC)
0	\$0	\$14	---
1	\$16	\$30	
2	\$22	\$36	
3	\$30	\$44	
4	\$42	\$56	
5	\$58	\$72	
6	\$78	\$92	
7	\$102	\$116	

- What is the firm's fixed cost? (\_\_\_\_/1)
- What is the average variable cost of producing 3 units?
- What is the firm's marginal cost at each quantity. (\_\_\_\_/1)
- Determine the firm's profit-maximizing level of output.
- What is the firm's profit at the profit-maximizing level of output?

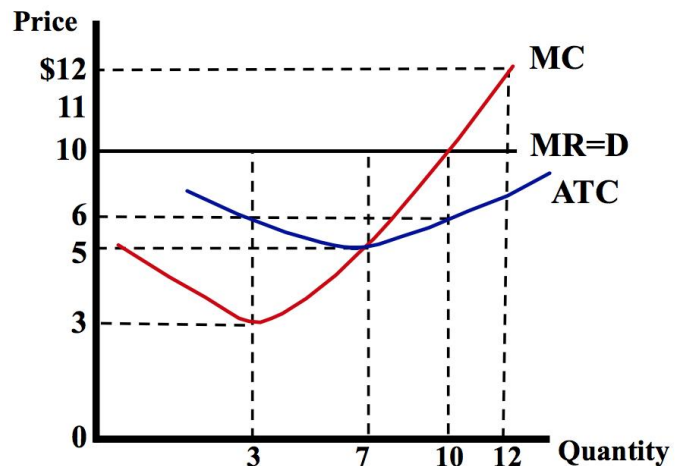
**7. Draw a short-run diagram showing a U-shaped average total cost curve, a U-shaped average variable cost curve, and a marginal cost curve. On it, indicate the range of output and the range of price for which the following actions are optimal.**

- The firm shuts down immediately.
- The firm operates in the short run despite sustaining a loss.
- The firm operates while making a profit.



**8. Refer to the graph provided.**

- Identify the profit maximizing output?
- Calculate the firm's total revenue.
- Calculate the firm's total cost.
- Calculate the firm's profit or loss.
- Explain what will happen to the price and quantity



for this firm in the long-run

e. Identify the price and quantity in the long-run

**9. Kim’s apparel shop produces women’s accessories in a perfectly competitive market. The market price of her bracelets is \$9 each. She employs variable inputs like labor and raw materials to the fixed input of her small shop.**

Q	TFC	TVC	TC	MC
0	\$5	\$0	\$5	---
1	\$5	\$6	\$11	\$6
2	\$5	\$11	\$16	\$5
3	\$5	\$13	\$18	\$2
4	\$5	\$18	\$23	\$5
5	\$5	\$25	\$30	\$7
6	\$5	\$34	\$39	\$9
7	\$5	\$49	\$54	\$15

- What is Kim’s profit-maximizing quantity of output? (\_\_\_/1)
- Calculate her economic profit or loss.
- What is her profit-maximizing level of output if price fell to \$6? What is her economic profit or loss?

**Additional Questions:**

**10. Assume that apples are an inferior good. Draw a perfectly competitive market for apples and a firm selling apples in the long run equilibrium where price is \$10 and the firm’s equilibrium quantity is 50. Explain the following situations graphically and in words (Draw and label side-by-side graphs for each).**

- EXPLAIN what happens in the short-run if incomes increases by 15%? ( \_\_\_/5)
- EXPLAIN the process by which this market returns to the long-run equilibrium ( \_\_\_/5)

**11. Below is information regarding Cory’s Surfboard Inc. Complete the table and do the following:**

- On a large graph, plot the MC, AFC, AVC, and ATC curves from this data ( \_\_\_/5)
- EXPLAIN what would happen to each of Cory’s per unit cost curves if the price of Styrofoam blanks (a variable input) increases. How would the cost curves change if there were an increase in his rent (a fixed input)? Explain why the results are different. ( \_\_\_/5)
- If the market for surfboards was perfectly competitive and the market price was \$150, how many surfboards should Cory make? How much is is total profit and how much profit will he make for EACH surfboard? Draw the firm’s demand on your graph in a. Explain how you got your answer. ( \_\_\_/5)

Total Product	Variable Costs (TVC)	Total Cost (TC)	Average Fixed Cost (AFC)	Average Variable Cost (AVC)	Average Total Cost (ATC)	Marginal Cost (MC)
0	\$0	\$100	-	-	-	-
1	60					
2	90					
3	130					
4	180					
5	250					
6	340					
7	490					
8	680					