

Economics 10: Problem Set 3 (With Answers)

1. Assume you own a bookstore that has the following cost and revenue information for last year:

- gross revenue from sales	\$100,000
- cost of inventory	40,000
- wages to clerk	12,000
- utilities and taxes	8,000
- \$10,000 of your money is invested in the firm; it could earn 10% if invested elsewhere	1,000
- you own the building; could be rented to someone else for \$1,000 per month	12,000
- you manage the store; could make \$22,000 managing for someone else	22,000

Determine explicit costs, opportunity cost, accounting profit, and economic profit for this firm.

2. Why is it necessary for a firm to equate marginal revenue and marginal cost in order to maximize its profits? What if the management of a firm discovers that marginal revenue is greater than marginal cost? What does this mean and what should the firm do?
3. Given that:

Quantity of Bikes	TC	MC	Var Costs	AV C	ATC
0	200				
1	250				
2	280				
3	300				
4	316				
5	334				
6	354				
7	378				
8	408				
9	441				
10	477				
11	519				
12	576				

- a) Draw the Total Cost, MC, ATC
- b) Explain shape of MC curve.
- c) Is this a long run situation?

4. The following waffle iron data are from Al's Waffle World of Pittsboro.

Output	0	1	2	3	4	5	6
Total Revenue	0	15	25	33	40	45	48
Total Costs	10	17	22	29	40	53	68

- a) If the firm maximizes profits, how many waffle irons should be produced?
- b) What are the fixed costs? If fixed costs increase by \$3, how many waffle irons should be produced? By \$5?
- c) What price should the firm charge assuming it produces at the optimal level of output.
- d) Graph the total cost, marginal cost and average cost curves. Also, draw the total revenue, marginal revenue and average revenue curves.

5.

Output	Total Fixed Costs	Total Variable Costs	Total Costs	Total Revenue	Profit or (Loss)	Marginal Cost	Marginal Revenue
0	100	0					
1	100	100					
2	100	180					
3	100	300					
4	100	440					
5	100	600					
6	100	780					
7	100	980					

- Assuming the market price of the firm's product is \$150, fill in the remaining columns.
- Profit is maximized at an output of_____.
- Draw total variable cost, total cost and total revenue. Show profit maximizing output.
- Using the information provided above, fill in the following table.

Output	AVC	ATC	MC	MR
0				
1				
2				
3				
4				
5				
6				
7				

- Draw AVC, ATC, MC and MR curves.
- Profit is maximized by producing_____units of output. Profit is
- \$_____. At the point of maximum profit_____equals_
- _____
- Suppose the firm's total fixed cost increases from \$100 to \$200, other things being equal. Should the firm continue to produce in the short run. If so, how much should it produce? Explain.