

HW Questions Chapter 8 “Short-Run Costs and Output Decisions”

2. July 23, 2007 LONDON – The final volume of the Harry Potter saga sold more than 11 million copies in the first 24 hours it went on sale in the United States and Britain to become the fastest-selling book in history, publishers said. In book publishing, fixed costs are very high and marginal costs are very low and fairly constant. Suppose that the fixed cost of producing the new Harry Potter volume is \$30 million. What is the average fixed cost if the publisher produces 5 million copies? 10 million copies? 20 million copies?

Now suppose that the marginal cost of a Harry Potter book is \$1.50 per book and is the same for each book up to 40 million copies. Assume that this includes all variable costs. Explain why in this case marginal cost is a horizontal line, as is average variable cost. What is the average total cost of the book if the publisher produces 5 million copies? 10 million copies? 20 million copies?

Sketch the average fixed cost curve and the average total cost curve facing the publisher.

6. The following table gives capital and labor requirements for 10 different levels of production.

q	K	L
0	0	0
1	2	5
2	4	9
3	6	12
4	8	15
5	10	19
6	12	24
7	14	30
8	16	37
9	18	45
10	20	54

- Assuming that the price of labor (PL) is \$5 per unit and the price of capital (PK) is \$10 per unit, compute and graph total cost, marginal cost, and average variable cost for the firm.
- Do the graphs have the shapes that you might expect? Explain.
- Using the numbers here, explain the relationship between marginal cost and average variable cost.
- Using the numbers here, explain the meaning of “marginal cost” in terms of additional inputs needed to produce a marginal unit of output.
- If the output price was \$57, how many units of output would the firm produce? Explain.

7. Do you agree or disagree with each of the following statements? Explain your reasons.

- If marginal cost is below the average variable cost, average variable cost will be declining.
- The marginal cost curve of any profit-maximizing firm is the firm's short-run supply curve.
- Total fixed costs are those costs that do not change with output, even if output is zero. Firms have control over fixed costs in the short run.

8. A firm's cost curves are given in the following table.

q	TC	TFC	TVC	AVC	ATC	MC
0	\$ 100	\$100				
1	130	100				
2	150	100				
3	160	100				
4	172	100				
5	185	100				
6	210	100				
7	240	100				
8	280	100				
9	330	100				
10	390	100				

- Complete the table.
- Graph AVC, ATC, and MC on the same graph. What is the relationship between the MC curve and the ATC and between MC and AVC?
- Suppose market price is \$30. How much will the firm produce in the short run? How much are total profits?
- Suppose market price is \$50. How much will the firm produce in the short run? What are total profits?

10. The following is a total cost curve. Sketch the corresponding marginal cost curve. If the price of output is \$3 and there are no fixed costs, what is the profit-maximizing level of output?

