

## Costs of the Individual Firm

### Part A

Fill in the blanks and answer the questions.

1. M.I. Fortunate was employed as plant manager for a corporation at a salary of \$50,000 a year, and she had savings of \$100,000 invested in securities that yielded an 8 percent annual income. She went into business for herself, investing all her savings in the enterprise. At the end of the first year, her accounts showed a net income of \$55,000 after all expenses of operation. One accountant said this accounting profit represented a 55 percent return on her \$100,000 investment. Another accountant, who had taken introductory microeconomics, said, “No, you should pay yourself the \$50,000 salary you would have earned anyway, and your accounting profit of \$5,000 represents a return of 5 percent on your investment of \$100,000.” A serious student of introductory microeconomics, however, should say, “No, your true economic profit from going into business for yourself is \_\_\_\_\_, and this is a return of \_\_\_\_\_ percent.” Was M.I. Fortunate fortunate? Why or why not?
2. Figure 26.1 (on the next page) shows a comprehensive set of cost data for a firm with a given plant at various levels of output. Study this table to understand how it is set up.

Marginal cost is the *additional* cost of producing an *additional* unit of output ( $\Delta TC / \Delta Q$ ). If producing an additional 100 units of output adds \$700 to total cost, the marginal cost per unit is  $\$700 / 100 = \$7.00$ , etc. Note that in the table, the “marginal” changes are located between output levels.

After you have filled in the blanks in Figure 26.1, finish plotting the aggregate cost data for fixed cost, variable cost and total cost (*not* change in total cost) on Figure 26.2. Also, finish plotting the unit cost data for  $FC / Q$ ,  $VC / Q$ ,  $TC / Q$  and  $\Delta TC / \Delta Q$  on Figure 26.3. Note that marginal cost ( $\Delta TC / \Delta Q$ ) is plotted at the midpoint (between output levels).

3. After you have finished plotting, answer the eight questions in Part B.

\* Figure 26.1  
Aggregate and Unit Cost Structure

Output	Aggregate Cost Data			Marginal Cost ( $\Delta TC / \Delta Q$ )	Unit Cost Data		
	Total Fixed Cost	Total Variable Cost	Total Cost		Average Fixed Cost	Average Variable Cost	Average Total Cost
0	\$500	\$0	\$500				
100	500	700	1,200	\$7.00	\$5.00	\$7.00	\$12.00
200	500	1,300		6.00	2.50	6.50	9.00
300			2,300	5.00	1.67	6.00	
400		2,400		6.00	1.25	6.00	7.25
500	500	3,100	3,600	7.00	1.00	6.20	
600	500		4,320	7.20	0.83	6.37	7.20
700	500	4,700	5,200	8.80	0.71	6.71	7.42

\* Figure 26.2  
Graph of Aggregate Cost Data

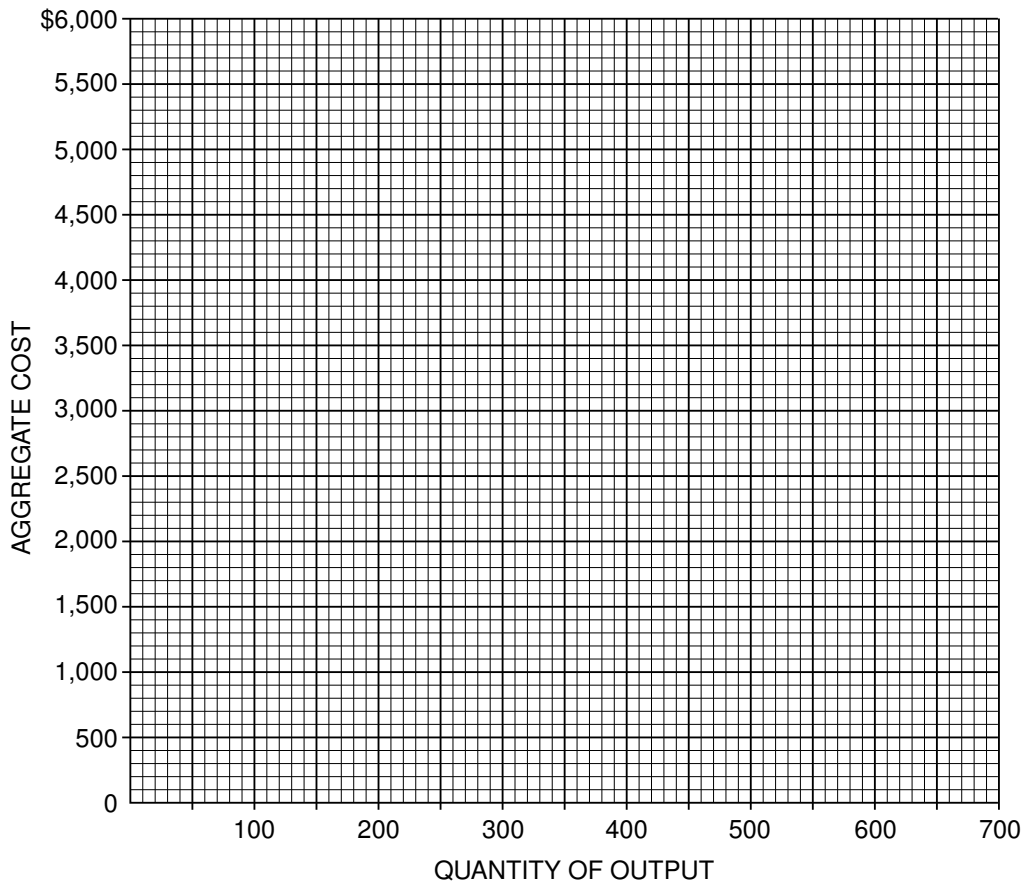
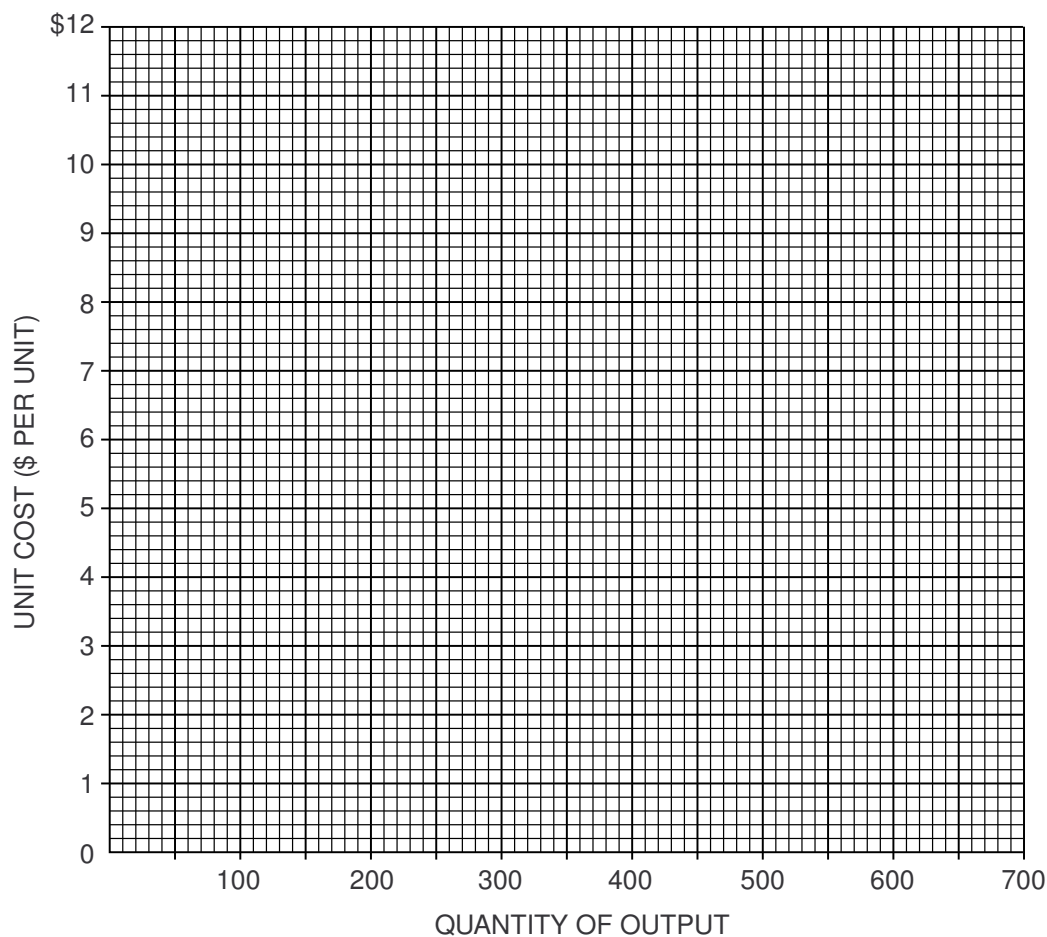




Figure 26.3

**Graph of Unit Cost Data**

*Note: Marginal cost ( $\Delta TC / \Delta Q$ ) is plotted between the output levels shown in Figure 26.1.*



**Part B**

4. How is marginal cost ( $\Delta TC / \Delta Q$ ) represented in Figure 26.2?
  
5. On Figure 26.3, total cost per unit ( $TC / Q$  or average total cost) is at a minimum at an output level of \_\_\_\_\_ units.
  
6. On Figure 26.3, variable cost per unit ( $VC / Q$  or average variable cost) is at a minimum at an output level of \_\_\_\_\_ units.
  
7. On Figure 26.3, what is the relation between marginal cost ( $\Delta TC / \Delta Q$ ) and average total cost ( $TC / Q$ ) when average total cost is at its minimum?

