

Costs and Competitive Market Supply (Perfect Competition)

Part A

- The Fiasco Company is a perfectly competitive firm whose daily costs of production (including a “normal” rate of profit) in the short run are as follows:



Figure 28.1

The Fiasco Company's Cost Table

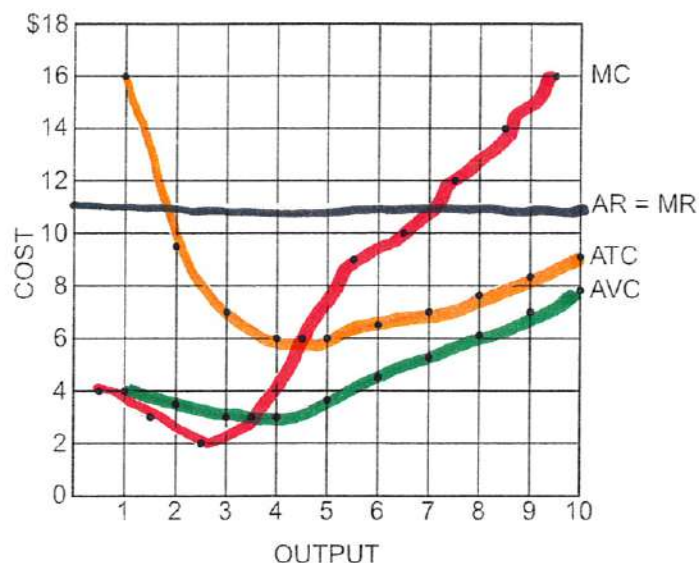
Output (per day)	Total Variable Cost	Total Cost	Marginal Cost	Average Total Cost	Average Variable Cost
0	\$0	\$12.00			
1	4.00	16.00	\$4.00	\$16.00	\$4.00
2	7.00	19.00	3.00	9.50	3.50
3	9.00	21.00	2.00	7.00	3.00
4	12.00	24.00	3.00	6.00	3.00
5	18.00	30.00	6.00	6.00	3.60
6	27.00	39.00	9.00	6.50	4.50
7	37.00	49.00	10.00	7.00	5.29
8	49.00	61.00	12.00	7.63	6.13
9	63.00	75.00	14.00	8.33	7.00
10	79.00	91.00	16.00	9.10	7.90

(A) Fill in the blanks in Figure 28.1.

(B) On Figure 28.2, plot and label the average variable cost (AVC), average total cost (ATC) and marginal cost (MC) curves. Plot marginal cost at the midpoint. Assume this firm can produce any fraction of output per day so that you connect the points to form continuous curves.



Figure 28.2
The Fiasco Company's Cost Curves



(C) How would you interpret the vertical distance between the average total cost and average variable cost curves?

(D) Why does average total cost decline at first, then start rising as output is increased?

(E) The marginal cost curve intersects both average cost curves (ATC and AVC) at their minimum points. Why?

(F) If fixed costs were \$20 instead of \$12, how would the change affect average variable costs and marginal costs?

2. Given the cost curves for Fiasco Company on Figure 28.2 and the fact that the competitive market price at which the company must sell its output is \$11 a unit, fill in the blanks below and add to your graph in Figure 28.2. (Remember, fractions of units are allowed.)

(A) Draw and label the average and marginal revenue curves on your graph.



LESSON 3 ■ ACTIVITY 28 (continued)

- (B) In order to maximize profits, Fiasco would sell _____ units, at a price of _____. Its average total cost would be _____. Its average revenue would be _____. It would earn a per-unit profit of _____ and total profit of _____ per day.
- (C) If the firm produced instead at the quantity that minimized its average total cost, it could sell _____ units, at a price of _____. Its average total cost would be _____. If the market price were \$11, its average revenue would be _____. It would earn a per-unit profit of _____ and total profit of _____ per day.
- (D) If the competitive market price fell to \$5 a unit, Fiasco would sell _____ units. Average total cost would be _____. It would earn a per-unit (*profit / loss*) of _____ and a total (*profit / loss*) of _____ per day.

Part B

3. The long-run cost conditions, including a “normal” rate of profit, for a perfectly competitive firm are as follows:



Figure 28.3

A Perfectly Competitive Firm Earning a “Normal” Rate of Profit

Output	Total Cost	Marginal Cost	Average Total Cost
1	\$9.00		\$9.00
2	13.00	\$4.00	6.50
3	18.00	5.00	6.00
4	24.00	6.00	6.00
5	31.00	7.00	6.20
6	39.00	8.00	6.50
7	48.00	9.00	6.86
8	58.00	10.00	7.25
9	69.00	11.00	7.67
10	81.00	12.00	8.10

- (A) Fill in the blanks in the average total cost and marginal cost columns.
- (B) The level of output at which average total cost is at a minimum is _____ units. At this output, average total cost is \$_____.

- (C) What quantities would the firm be willing to supply at each of the following prices for its product?



Figure 28.4
Price and Quantity Supplied

Price	Quantity Supplied
\$6	4
7	5
8	
9	
10	
11	
12	

- (D) In general, the supply schedule (curve) of a perfectly competitive firm coincides with its _____ schedule (curve) in the range where _____ is greater than _____.

4. Suppose the perfectly competitive firm in Question 3 is one of 1,000 identical firms currently operating in a competitive industry, all of which have identical cost functions. The market demand for this industry is given in Figure 28.5



Figure 28.5
Market Demand for an Industry

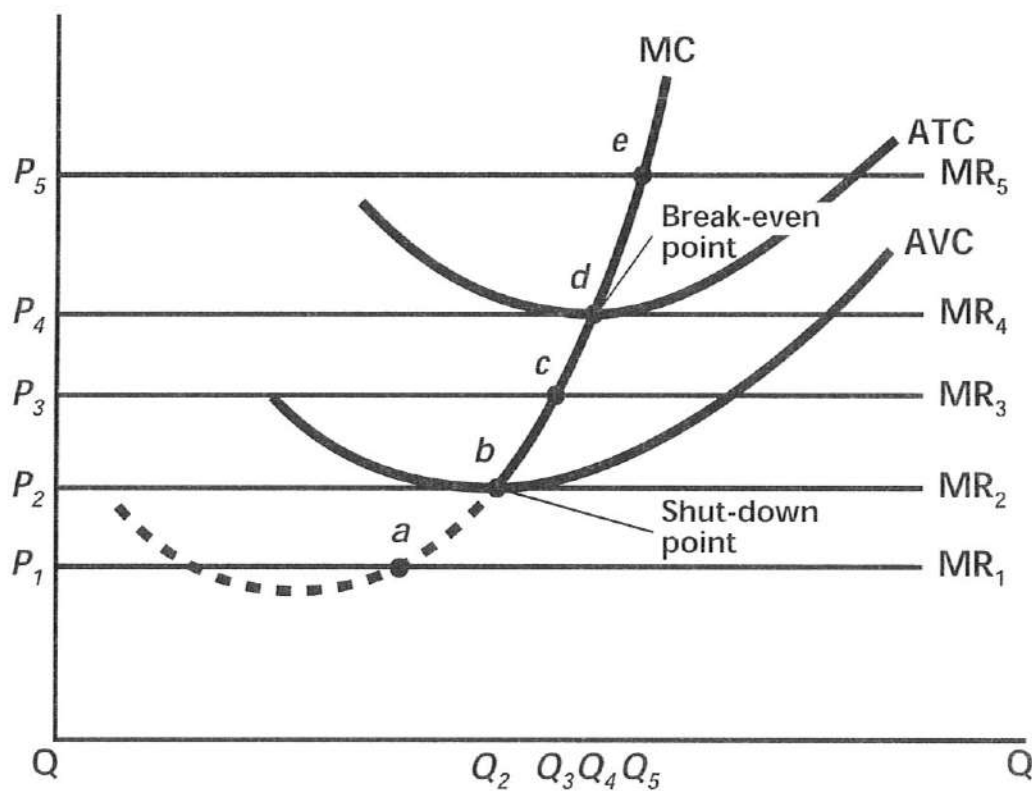
Price	Quantity Demanded	Quantity Supplied
\$12	2,000	10,000
11	3,000	9,000
10	4,000	
9	5,000	
8	6,000	
7	7,000	
6	8,000	

- (A) Fill in the industry supply schedule in Figure 28.5. Then answer the following questions by filling in the answer blanks, underlining the correct words in parentheses or writing a sentence.
- (B) Explain briefly how the short-run supply schedule (curve) of a competitive industry is derived.

- (C) Given the present 1,000 firms in the industry, the present market price is _____; the present equilibrium quantity is _____ units. At this price, each firm will be making (*positive economic profit / zero economic profit / negative economic profit / economic losses*).
- (D) Given the equilibrium above, and assuming that other firms can enter the industry with the same cost as the present firms, the number of firms in the industry in the long run will tend to (*increase / decrease / remain constant*) and the price will tend to (*increase / decrease / remain constant*). The output of the industry will tend to (*increase / decrease / remain constant*), while output per firm will (*increase / decrease / remain constant*).
- (E) If this is a constant-cost industry (i.e., costs per unit of output are constant as the industry expands), the long-run equilibrium price for the industry will be _____; output per firm will be _____ units. There will be _____ firms in the industry, each earning _____ economic profits; industry output will be _____ units. The equilibrium price coincides with the _____ per-unit cost of production.
- (F) Can you see why, under the conditions described above, that the long-run market-supply curve for this industry would appear as a horizontal line on a graph? Explain.
- (G) Using the cost curves in Figure 28.2, at what price would this long-run horizontal line be plotted? _____ Explain why it would be at this price.

Visual 3.6

Profit, Loss, and Shut-Down



Short-Run and Long-Run Competitive Equilibrium

Part A



Figure 29.1
Competitive Firm and Industry

Diagram A: Cost Situation
for Each Greebe Producer

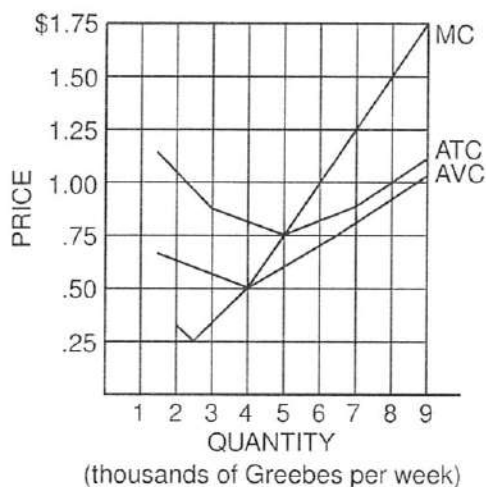
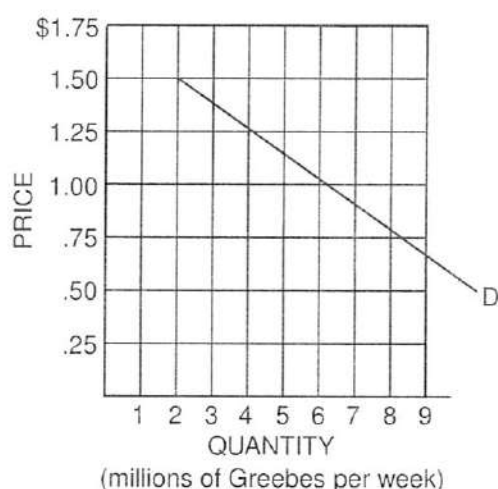


Diagram B: Market Supply
and Demand for Greebes



There are currently 1,000 producers of Greebes, each with economic costs like those shown in Diagram A of Figure 29.1. (You should know how to label each of the cost curves.) The market demand for Greebes is shown in Diagram B of Figure 29.1. Assume that the minimum of the short-run average total cost curve occurs at the same output as the minimum of the long-run average total cost curve.

1. Plot on Diagram B the current market supply curve for Greebes and label this curve S. (Ask how much each producer will supply at various prices, and figure how much the total supply *from all 1,000 producers together* will be at those prices. **Note:** One million is a thousand thousand: 1,000,000.)
2. Shade in the appropriate profit (or loss) rectangle in Diagram A, and calculate the total amount of economic profit or loss each typical Greebe producer will make under these conditions. Fill in the blanks below to aid you in your calculations.

(A) Price (P) received by each Greebe producer: _____ per Greebe

Adapted from Phillip Saunders, *Introduction to Microeconomics: Student Workbook*, 18th ed. (Bloomington, Ind., 1998). Copyright © 1998 Phillip Saunders. All rights reserved.

- (B) Quantity (Q) produced by each Greebe producer: _____ thousand Greebes per week
- (C) Average total cost (ATC) for this quantity (approximate): _____ per Greebe
- (D) Economic profit (loss) for each unit produced (P-ATC): _____ per Greebe
- (E) Total economic profit (loss) for each Greebe producer: Profit (loss) per unit x quantity produced = _____ per week
3. Is the Greebe market in long-run equilibrium? Why or why not?
4. What is the long-run equilibrium price in this market? _____ per Greebe
- (A) How many Greebes will each firm produce at this price? _____ thousand Greebes per week
- (B) What will be the total market quantity of Greebes produced at this price? _____ million Greebes per week
- (C) How many firms will be in the market at this price? _____

Part B



Figure 29.2

Competitive Firm and Industry

Diagram C: New Cost Situation
for Each Greebe Producer

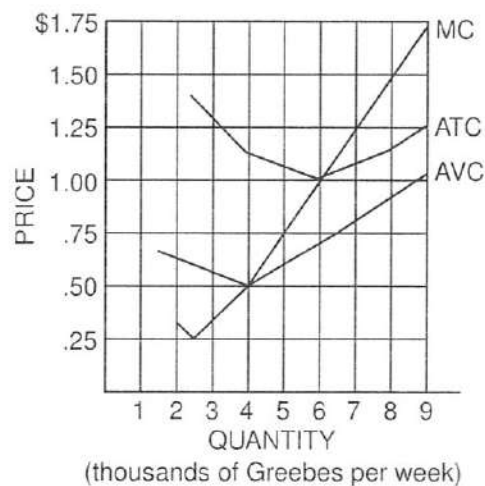
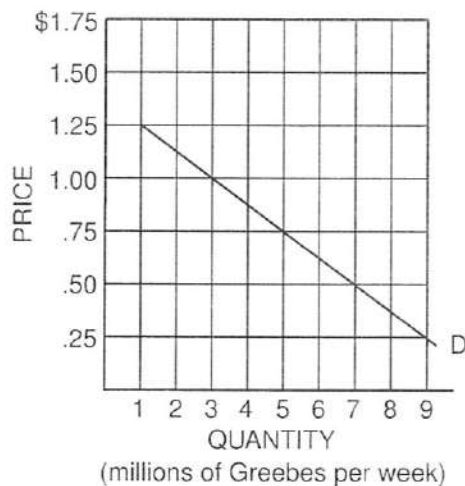


Diagram D: New Market Supply
and Demand for Greebes



Now, let's start all over again with a new set of cost and demand conditions in the Greebe market. There are again currently 1,000 producers of Greebes, each with economic costs like those shown in Diagram C of Figure 29.2. The market demand for Greebes is shown in Diagram D.

5. Plot on Diagram D the current market supply curve for Greebes and label this curve S.
6. Shade in the appropriate profit (or loss) rectangle in Diagram C, and calculate the total amount of economic profit or loss that each typical Greebe producer will make under these conditions. Fill in the blanks below to aid you in your calculations.
 - (A) Price (P) received by each Greebe producer: _____ per Greebe
 - (B) Quantity (Q) produced by each Greebe producer: _____ thousand Greebes per week
 - (C) Average total cost (ATC) for this quantity (approximate): _____ per Greebe
 - (D) Economic profit (loss) for each unit produced ($P - ATC$): _____ per Greebe
 - (E) Total economic profit (loss) for each Greebe producer: Profit (loss) per unit \times quantity produced = _____ per week
7. Is the Greebe market in long-run equilibrium? Why or why not?
8. What is the long-run equilibrium price in this market? _____ per Greebe
 - (A) How many Greebes will each firm produce at this price? _____ thousand Greebes per week
 - (B) What will be the total market quantities of Greebes produced at this price? _____ million Greebes per week
 - (C) How many firms will be in the market at this price? _____