Microeconomics, Module 8: “Competition: Long Run” (Chapter 7)

Homework

(The attached PDF file has better formatting.)

Suppose a firm’s fixed costs are \$80,000, and its marginal cost curve is $MC = \frac{1}{4} Q$. The market demand curve is $Q = 10{,}000 - 10P$.

A. What is the firm’s variable cost curve? (Integrate the marginal cost curve.)
B. What is the firm’s total cost curve? (Add fixed and variable costs.)
C. What is the firm’s average cost curve? (Divide total costs by quantity.)
D. What is the firm’s minimum average cost? (Set the partial derivative with respect to quantity equal to zero.)
E. What is the quantity at this minimum average cost? (At this point, average cost equals marginal cost; use the marginal cost curve to determine the quantity.)
F. What is the industry demand at this price? (Use the market demand curve.)
G. If firms are identical, how many firms compete in this industry? (Divide the market quantity by the firm’s quantity.)
H. What is the industry short run supply curve? (Multiple each firm’s supply curve by the number of firms.)
I. If the market demand curve changes to $Q = 8{,}000 - 10P$, what is the new short run equilibrium price and quantity? (Solve for the intersection of the supply and demand curves.)
J. What is the quantity produced by each firm, assuming all are identical? (Divide market quantity by the number of firms.)
K. What is the revenue for each firm? (Quantity times price.)
L. What are the costs of each firm? (Fixed costs plus variable costs at the new production level.)
M. What is the profit or loss to each firm in the short run? (Revenue minus costs.)
N. If firms expect the change in market demand to be temporary, what do they do? (Would an increase or decrease in quantity supplied raise or lower profits?)
O. If firms expect the change in market demand to be permanent, what do they do? What items determine whether a firm exits the industry?

This homework assignment follows the pattern in the discussion board practice problem postings.