

Question #39844 – Economics - Economics of Enterprise

Assignment

A monopolist can produce at constant average and marginal costs of $AC = MC = 9$. The firm faces a demand curve given by:

$$q = 75 - p$$

Calculate the profit maximizing price quantity combination for the monopolist. Also calculate the monopolist's profits.

Solution

The monopolist wants to choose quantity to maximize its profits:

When MR (marginal revenue) = MC (marginal cost), $\max \pi$

TR (total revenue) = $PQ = (75 - Q)Q = 75Q - Q^2$.

$$TC = AC \cdot Q = 9Q$$

To determine the profit-maximizing quantity, set the change in P with respect to the change in Q equal to zero and solve for Q:

$$MR = dTR/dQ = 75 - 2Q$$

$$MR = MC = 9 \rightarrow 75 - 2Q = 9 \rightarrow Q = 33$$

Substitute the profit-maximizing quantity, $Q = 33$, into the demand function to find price: $33 = 75 - P \rightarrow P = 42$.

The monopolist's profits $\pi = TR - TC = 75Q - Q^2 - 9Q = 66Q - Q^2 = 66 \cdot 33 - 33^2 = 1089$