

Answer on Question#37494 - Economics – Microeconomics

Sally's firm produces granola bars with a fixed cost of 10 (this cost is already sunk). Her variable cost function is $VC = q^2 + 2q$. Assuming the market for granola bars is competitive, derive Sally's supply function?

What is Sally's surplus if the market price is 6? What is her profit? Does she want to stay in this market? Explain.

Solution

$$FC = 10. \quad VC = q^2 + 2q.$$

1) Supply function is equal to marginal cost function after the point where $ATC = MC$. $MC = TC'$

$$TC = FC + VC = q^2 + 2q + 10$$

$MC = TC' = 2q + 2$, so Sally's supply function will be $P = 2q + 2$ or $Q_s = P/2 -$

1

2) If the market price is \$6, $Q = 6/2 - 1 = 2$.

$Q = 0$ when $P = \$2$.

Sally's surplus is the triangle with points (0;6), (2;6), (0;2).

$$\text{Sally's surplus} = 0.5 \cdot (6 - 2) \cdot 2 = \$2$$

3) Profit = $TR - TC = P \cdot Q - TC = 6 \cdot 2 - 2^2 - 2 \cdot 2 - 10 = -6$, so Sally has losses.

4) Sally should stay in this market if $P > AVC$

$$AVC = VC/Q = q + 2 = 2 + 2 = 4$$

As $6 > 4$, Sally should stay in this market.