To optimize profits, firms aim for marginal cost to equal marginal revenue (MC = MR). Given a demand curve of $q = 60 - (1/2)\,p$, we determine the price as follows:

We rearrange the demand equation to isolate 'p':

$q = 60 - (1/2)\,p$

Rearranging, we get:

$p = 120 - 2q$

Next, we derive the marginal revenue curve, which is twice as steep as the demand curve:

$MR = 120 - 2(2q)$

Simplifying, we get:

$MR = 120 - 4q$

To maximize profit, we set MC equal to MR, leading to:

$60 = 120 - 4q$

Solving for 'q':

$4q = 120 - 60$

$q = 60 / 4 = 15$ units

The firm will produce 15 units. With this quantity known, we substitute it into the price equation:

$p = 120 - 2(15)$

$p = 120 - 30 = 90$

Hence, the firm will charge a price of $90 per unit.

The goal is to find the profit-maximizing quantity and price for a firm in monopolistic competition using the given demand curve and information on marginal cost.

To determine the optimal output level, I utilized the principle that firms maximize profits by producing at the point where marginal cost (MC) equals marginal revenue (MR).

I started by deriving the total revenue function from the demand curve and then took its derivative to get MR.

I set MR equal to the marginal cost of 60 and solved for the quantity "q" that satisfies this condition. This gave me the profit-maximizing level of output.

Once I had the optimal quantity, I plugged this value back into the original demand curve equation to determine the profit-maximizing price.

So, in essence, I identified the quantity where MR=MC to maximize profits, then used the demand curve to find the associated price for selling that level of output. This approach relies on comparing MR and MC curves and leveraging the demand function to determine optimal price and quantity decisions.