

Econ 101 | Vignette E5

Unicorn Horn

The Apothecary is the only seller of unicorn horn in the area. Unicorn horn is an important ingredient in making potions, and everyone who needs the substance must buy it at the Apothecary. Demand for unicorn horn is given by the equation $P = 50 - Q$, where prices are given in terms of galleons and quantity is given in terms of stones. The marginal cost of producing unicorn horn is a constant 5 galleons per stone, and there are no fixed costs.

Part A. Quantity

Suppose the Apothecary sells unicorn horn to anyone for the same price. Knowing that the marginal revenue generated by each unit sold is $MR = 50 - 2Q$, calculate the Apothecary's profit maximizing quantity of unicorn horn.

Part B. Price

What is the Apothecary's profit maximizing price?

Part C. Profit

What is the Apothecary's maximum profit?