# ECON 0100 | Part E

## *Vignette E2*

## Question 1 (of 2) | Unicorn Horn

Unicorn horn is an important ingredient in many potions voluntarily donated by unicorns at the end of every season. The Apothecary is the only seller with access to unicorns so everyone who needs the substance must buy it at the Apothecary, with demand given by the following equation:

$$D : P = 50 - Q \tag{1}$$

with costs in galleons and quantity in killograms. The marginal cost of producing unicorn horn is a constant $5$ galleons per stone and no fixed costs.

## Q1.a | Profit Maximizing Quantity

Suppose the Appothecary 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.

## Q1.b | Price

What is the Apothecary's profit maximizing price?

## Q1.c | Profit

What is the Apothecary's maximum profit?

## Question 2 (of 2) | The History of the Broomstick Market

In the early days of magical sporting and transportation, Shooting Star was the first broomstick maker to enter the market. They developed a proprietary method for autolocomotion and held the entirety of the market. As their technological secrets began disseminating among the wizarding world, many broomstick makers began producing broomsticks with identical handling and acceleration characteristics. Today, few if any new broomstick makers had opened.

Using a few graphs to illustrate your answer, tell the story of the evolution of the broomstick market from it's inception to the present. Be sure to finish in a long run equilibrium.