Econ 101 | Demo E4

Question 1 (of 2) | Parallel Wandmaker's Dillemma

Suppose the demand for wands is given by

$$P = 100 - Q$$

and there are two main wand sellers, Olivander and Gregorovitch. Olivander can make wands at a constant marginal cost of 10, while Gregorovitch can make wands at a constant marginal cost of 5. The marginal revenue for Olivander is

$$MR_O = 100 - 2q_O - q_G$$

and for Gregorovitch it is

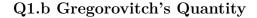
$$MR_G = 100 - 2q_G - q_O$$

Units are in galleons and stones. Calculate the Nash equilibrium level of output for the two wandsellers and put it in the blanks below.

Note. This Oligopoly is not symmetric. So the trick we used in class won't work here. Simply solve for both firm's optimization decisions separately.

Q1.a Olivarnder's Quantity

What is the Nash equilibrium quantity for Olivander?



What is the Nash equilibrium quantity for Gregorovitch?

Q1.c Equilibrium Price

What is the Nash equilibrium price in this market?

Q1.d Subsidizing Wands

In a highly unethical move, the Ministry of Magic imposed a 10 galleon subsidy on wand sales, ensuring only the wealthiest were able to attend wizarding school. Model this as a 10 galleon increase in the marginal cost of making a wand and find the Nash equilibrium quantity and price after the tax.

Question 2 (of 2) | Wizard's Chess

Wizard's Chess is a somewhat common game played by witches and wizards, similar to chess but with self-moving pieces. Due to it's proprietary production process the game can only be obtained at Weasley's Wizard Wheezes through a secretive supplier, X. The demand for Wizard's Chess is given by:

$$P = 10 - 2Q$$

The marginal cost of producing each game is a constant 1 galleon, and there are no fixed costs. The marginal revenue per game is:

$$MR = 10 - 4Q$$



Q2.a Quantity

What is the profit maximizing number of games X should sell? Label on the graph above.

Q2.b Price

What price should X charge per game? Label on the graph above.

Q2.c Profit

What is X's profit from selling the games? Label on the graph above.

Q2.d Subsidizing X

As TikTok began to capture the attention of the magical world's youth, the Ministry of Magic implemented a 1 galleon subsidy on Wizard's Chess in an attempt to encourage more cognitively challenging pastimes. Use a graph to show the affect this subsidy had on the market.

