

Econ 0100 | Homework B

Due: Friday, Sept 22

Homework is designed to both test your knowledge and challenge you to apply familiar concepts in new applications. Answer clearly and completely; show your work so I can understand your thought process for partial credit; you are welcomed and encouraged to work in groups as long as your work is your own.

Chat GPT's Homework

I asked Chat GPT: "Write a paragraph setup for a short assignment about one commodity in Harry Potter in the style of a student." This assignment is based on it's response.

Alright fam, listen up! You're about to work through some short questions about one sick commodity in the wizarding world of Harry Potter. We're talking about a product that's been around since day one and still has the wizarding community hyped. You got your quills ready? Let's go!

The commodity we'll be discussing in this exam is the magical ingredient Dragon's Blood. This rare and powerful substance is used in potions and is highly sought after due to its unique properties and abilities. From healing and protection spells, to fire-breathing and power amplification, Dragon's Blood is a crucial component in the wizarding world and is worth its weight in gold.

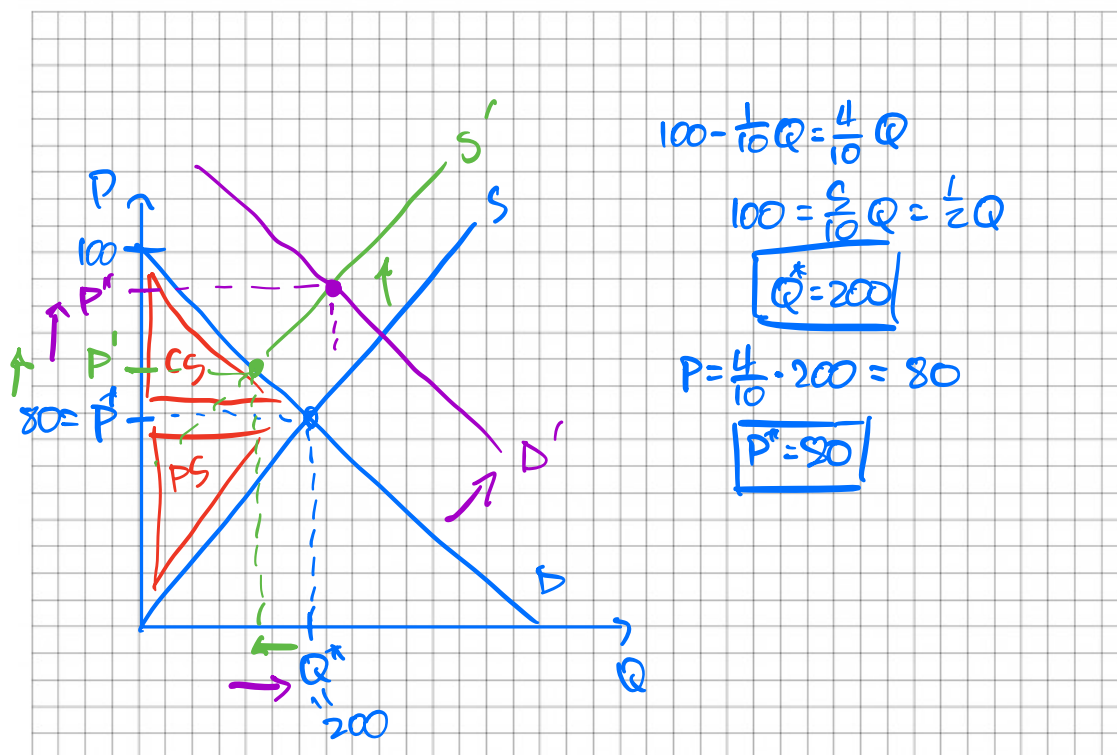
The supply and demand equations for Dragon's blood:

$$P = 100 - \frac{1}{10}Q_d$$

$$P = \frac{4}{10}Q_s$$

Q1. Equilibrium for Dragon's Blood

Use a graph to describe the market for Dragon's Blood. Be sure to 1) calculate equilibrium, and 2) label but don't calculate the relevant welfare measures.



The market is in equilibrium with quantity of 200 and price of 80.

Q2. Second Wizarding War

During the second wizarding war the production of Dragon's Blood was affected as dragon populations were being hunted to extinction. Use the graph above to discuss the impact on the market for Dragon's Blood.

The second wizarding war made it difficult to produce Dragon's Blood. this led to higher prices and lower quantity. "ew"

Q3. The Dark Arts

The time of the war coincided with the rise of the Dark Arts. Dragon's Blood was an important part of these practices as they became more widespread. Use the graph from Q1 and Q2 to discuss the impact on the market for Dragon's Blood.

This rise in popularity led to a shift out in the demand curve, leading to an increase in prices and an indeterminate change in quantity relative to the initial equilibrium.

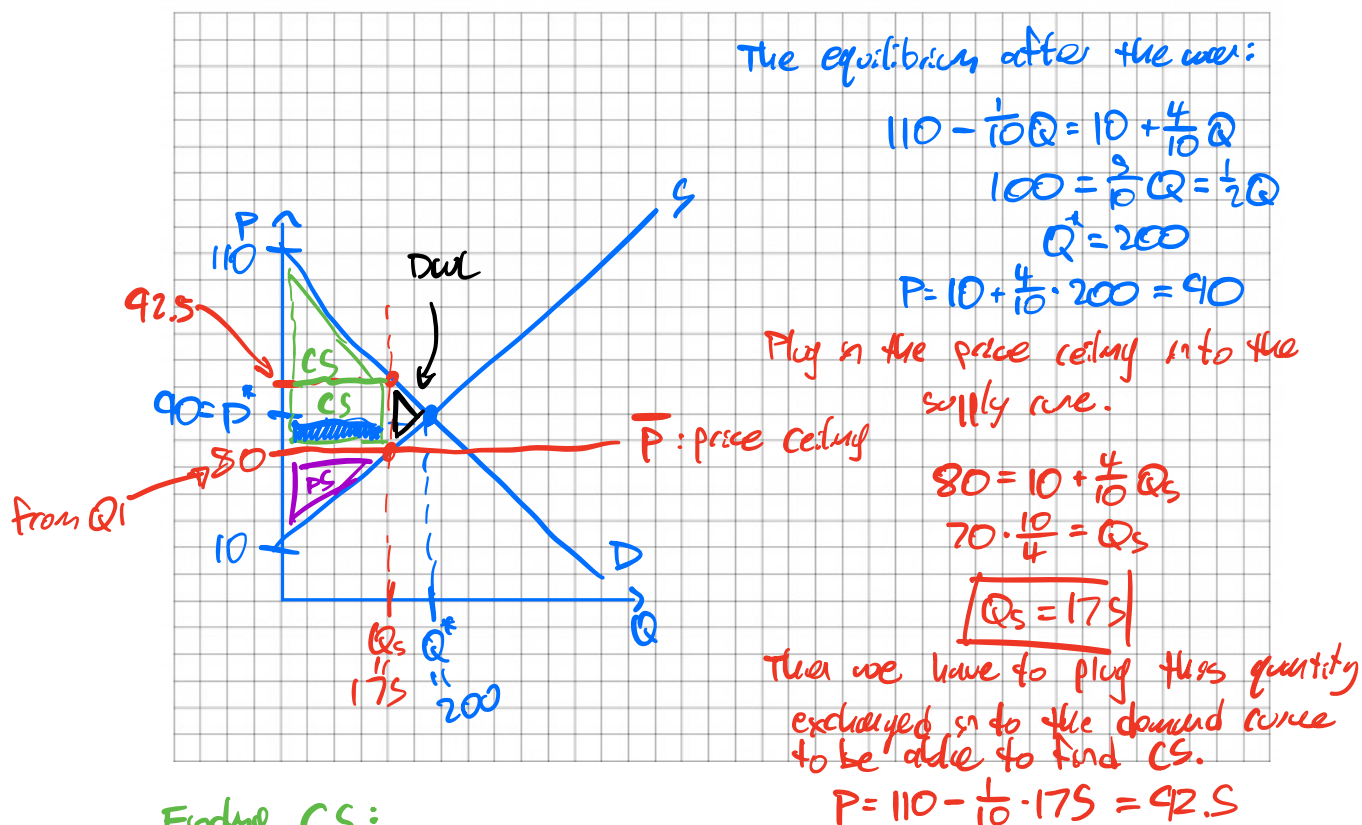
Q4. Post-War Policy

The supply and demand equations for Dragon's blood after the war and the rise of the dark arts.

$$P = 110 - \frac{1}{10}Q_d$$

$$P = 10 + \frac{4}{10}Q_s$$

To combat the rising prices of Dragon's Blood, the Ministry of Magic implemented a price control, requiring the price to be no greater than it was before the war. Use a graph to discuss the impact of the market. Be sure to label and calculate the DWL and the amount of surplus transferred between consumers and producers due to this policy.



Finding CS:

$$\square = (92.5 - 80) \times 175$$

$$= 12.5 \times 175$$

$$\triangle = (110 - 92.5) \times 175 \times \frac{1}{2}$$

$$= 17.5 \times 175 \times \frac{1}{2}$$

Finding PS:

$$\triangle = (80 - 10) \times 175 \times \frac{1}{2}$$

$$= 70 \times 175 \times \frac{1}{2}$$

Finding DWL:

$$\triangle = 12.5 \times (200 - 175) \times \frac{1}{2}$$

$$= 12.5 \times 25 \times \frac{1}{2}$$

Finding transfer: PS \rightarrow CS

$$\square = (90 - 80) \times 175$$

$$= 10 \times 175$$

This policy transferred some surplus from producers to consumers, decreased producer surplus, generated DWL, and lowered quantity exchanged.