

NAME:

**EC 131 - Principles of Microeconomics
Fall 2012**

MIDTERM #1

All questions must be answered in the following pages. Show *all* your work in the analytical questions. Nothing here requires a very long answer. Graphs often help, as does neatness. Mark **clearly** your answers for the multiple choice questions in their respective letters. If more than one alternative is marked you will not get any point from that question.

You have 75 minutes to complete this exam. You can use pencil, though if you do so you won't be able to dispute the grading for that question afterwards. **You MUST return this exam.** Each question clearly states how many points it is worth. The exam is worth 120 points.

Use your time wisely.

Consider the following productivity for the farmers Sinan and Bertan and use it to answer questions 1 to 3:

| | Minutes Needed to Make 1 | |
|--------|--------------------------|---------------|
| | Bushel of Corn | Pound of Pork |
| Sinan | 20 | 12 |
| Bertan | 15 | 10 |

Question 1 - (5 points) Mark the **correct** alternative:

- The information in the table above is sufficient to determine the production each farmer will have
- The information in the table above is sufficient to determine which products each farmers will specialize in when they trade**
- The information in the table above is sufficient to determine which production levels are efficient
- None of the above is correct

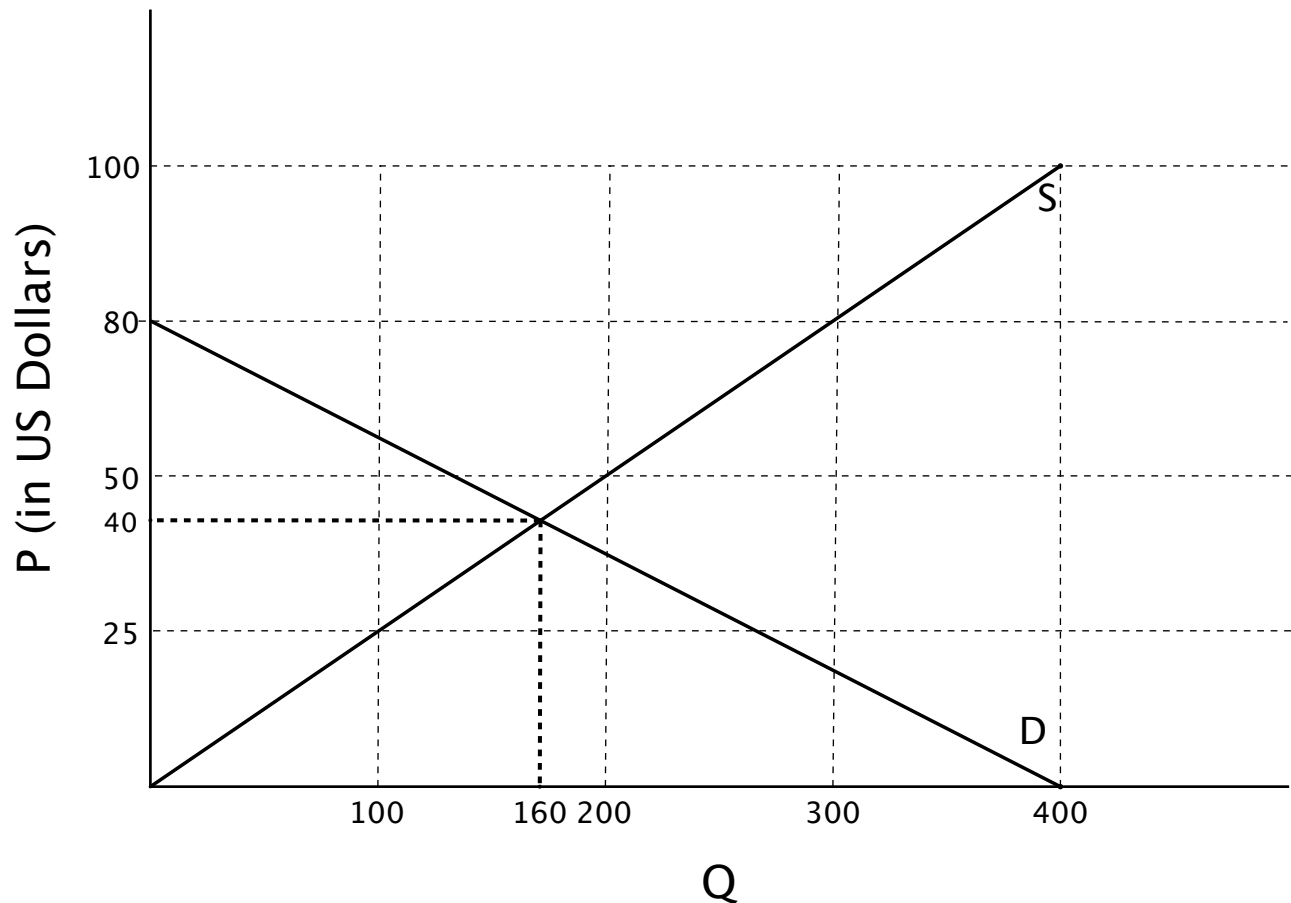
Question 2 - (5 points) Suppose that both Sinan and Bertan can work for **10h per day**. Mark the alternative that consists of **feasible** production levels for **both** farmers in one day:

| | Sinan | | Bertan | |
|----------|-----------------|----------------|-----------------|----------------|
| | Bushels of Corn | Pounds of Pork | Bushels of Corn | Pounds of Pork |
| a | 12 | 35 | 20 | 36 |
| b | 21 | 20 | 0 | 50 |
| c | 9 | 35 | 20 | 30 |
| d | 12 | 5 | 32 | 13 |

Question 3 - (5 points) Mark the **correct** alternative:

- Sinan has absolute advantage over Bertan in the production of both corn and pork
- Bertan has comparative advantage over Sinan in the production of corn**
- Sinan has comparative advantage over Bertan in the production of corn
- If they decide to trade, Sinan will sell corn to Bertan

Use the following graph of the market for backpacks (with linear supply and demand curves) for questions 4,5,6 and 7:



Question 4 - (5 points) If $P = \$50$, mark the **correct** alternative:

- Consumers will demand more than 100 backpacks, at less than \$0.50 each
- Consumers will demand 200 backpacks, at \$0.25 each
- Producers will supply 200 backpacks at \$50 each**
- Consumers will demand 200 backpacks at \$50 each

Question 5 - (5 points) Suppose that the government sets a **price floor of \$25**. Mark the **correct** alternative:

- More than 250 backpacks will be purchased by consumers
- More than 250 backpacks will be supplied by the producers
- 100 backpacks will be supplied by the producers
- None of the above**

Question 6 - (5 points) Suppose that the market for backpacks is free and competitive. Then in the market equilibrium the **price elasticity of demand** is:

- a. $1/5$
- b. $1/4$
- c. **$5/4$**
- d. 4

Question 7 - (5 points) Given your answer in question 6, and supposing that **prices raise a little above the equilibrium level**, mark the **correct** alternative:

- a. Total revenue will increase
- b. **Total revenue will decrease**
- c. Total revenue will stay the same
- d. We don't have enough information to determine how total revenue will respond

Question 8 - (5 points) If a good is an **inferior good**, then the following is correct:

- a. The quantity demanded for that good is lower than for a normal good
- b. The equilibrium price for that good is lower than for a normal good
- c. An increase in income increases the demand for it
- d. **An increase in income reduces the demand for it**

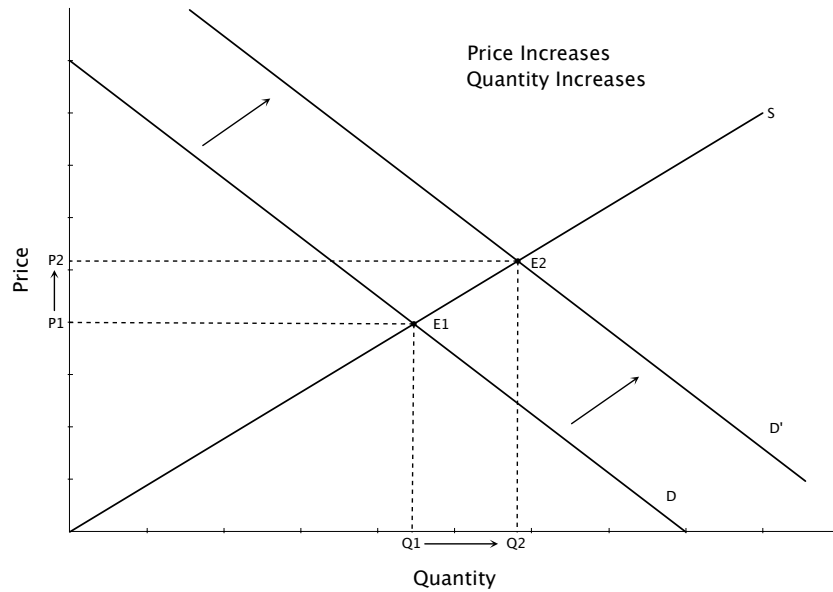
Question 9 - (5 points) Suppose that the government has imposed a price ceiling on cellular phones. Which of the following events could transform the price ceiling from one that is binding to one that is not binding?

- a. Cellular phones become more popular
- b. Traditional land line phones become more expensive
- c. The components used to produce cellular phones become more expensive
- d. **A technological advance makes cellular phones production less expensive**

Question 10 - (5 points) Suppose that the equilibrium price in the market for widgets is \$5. If a law increased the minimum legal price for widgets to \$6:

- a. The resulting increase in consumer surplus would be larger than any possible loss of producer surplus.
- b. The resulting increase in consumer surplus would be smaller than any possible loss of producer surplus.
- c. Any possible increase in producer surplus would be larger than the loss of consumer surplus.
- d. **Any possible increase in producer surplus would be smaller than the loss of consumer surplus.**

Question 11 - (20 points) Consider the market for **peanut butter** (a **normal good**), and suppose that it is a competitive market. For each of the items below, **draw a demand and supply graph, indicating clearly which curves shift and how they look before and after the change**, and write down how equilibrium price and quantity change (**up, down or ambiguous**). Below is an **EXAMPLE** of how the answers must look like. **If the analysis involves more than one market, draw the graphs showing the effects on those.**



- a. The cost of peanuts decreases

Supply shifts to the right. Price decreases, quantity decreases.

- b. Studies find that eating peanuts help people look younger

Demand shifts to the right. Price increases, quantity increases.

- c. The price of Nutella (a **substitute** for peanut butter) goes down

Demand shifts to the left. Price decreases, quantity decreases.

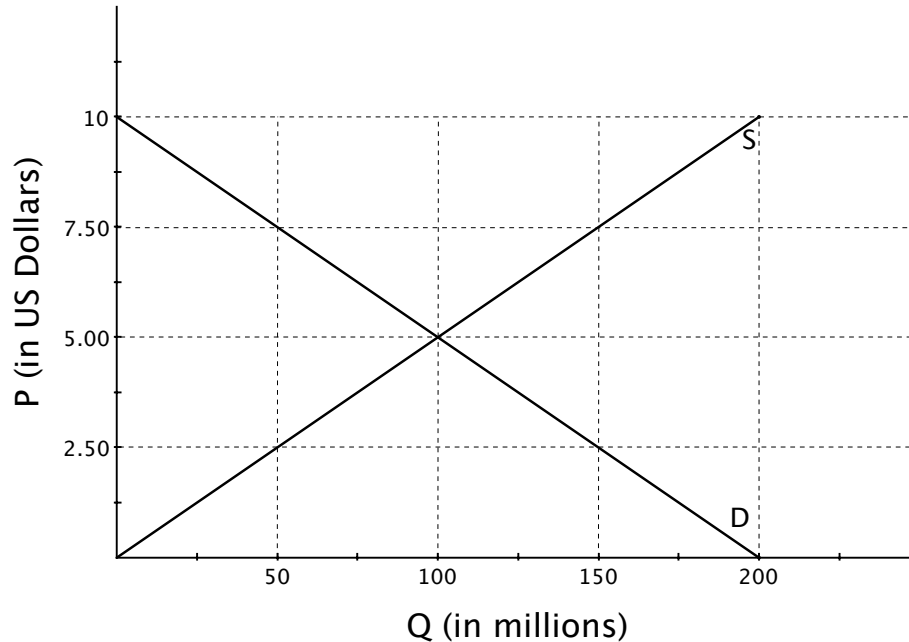
- d. The price of Vitamin E capsules (a **substitute in production** for peanut butter) increases, and the price of bread (a **complement** to peanut butter) decreases

Demand shifts to the right. Supply shifts to the left. Price increases, quantity is ambiguous.

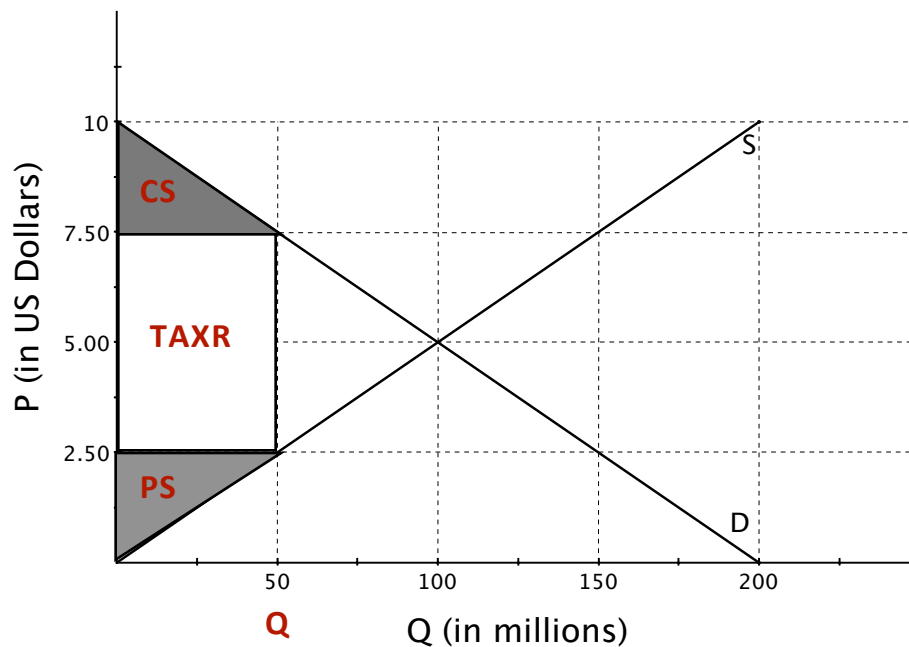
- e. A famous celebrity endorses Nutella in the TV and the number of firms selling peanut butter increases.

In the Nutella market, demand shifts to the right, raising its price. This shifts the peanut butter demand to the right. The supply curve also shifts to the right. Quantity increases, price ambiguous.

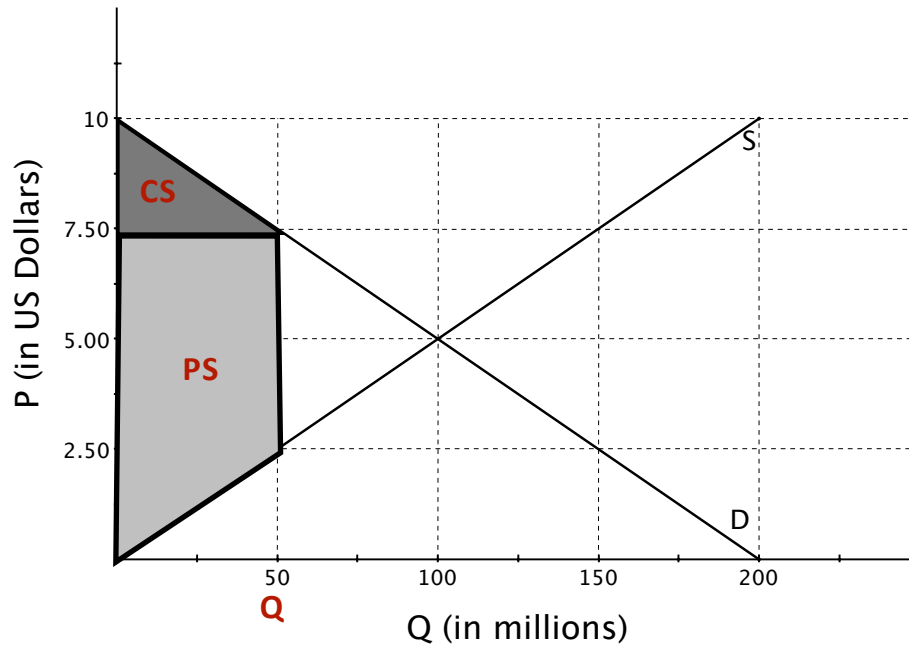
Question 12 - (20 points) Suppose that you are a consultant for the state of Massachusetts and are asked to prepare an economic analysis of two policies proposed to reduce the incidence of smoking in the state. After analyzing some data, the following demand and supply curves for cigarettes are derived:



a. The first policy proposed is a **\$5 tax** on the sale of each cigarette pack. **Indicate CLEARLY in the graph below** the **quantity sold (Q)**, the **consumer surplus (CS)**, the **producer surplus (PS)** and the **tax revenue (TAXR)**



b. The second policy proposed is a price floor of **\$7.50** on the price of each cigarette pack. **Indicate in the graph below the quantity sold (Q), the consumer surplus (CS) and the producer surplus (PS)**



c. Which among those policies achieves a greater reduction of the quantity of cigarette purchased?

Both achieve the same reduction, from $Q=100$ to $Q=50$

d. Which among those policies is most likely going to be supported by the cigarettes companies? **Justify.**

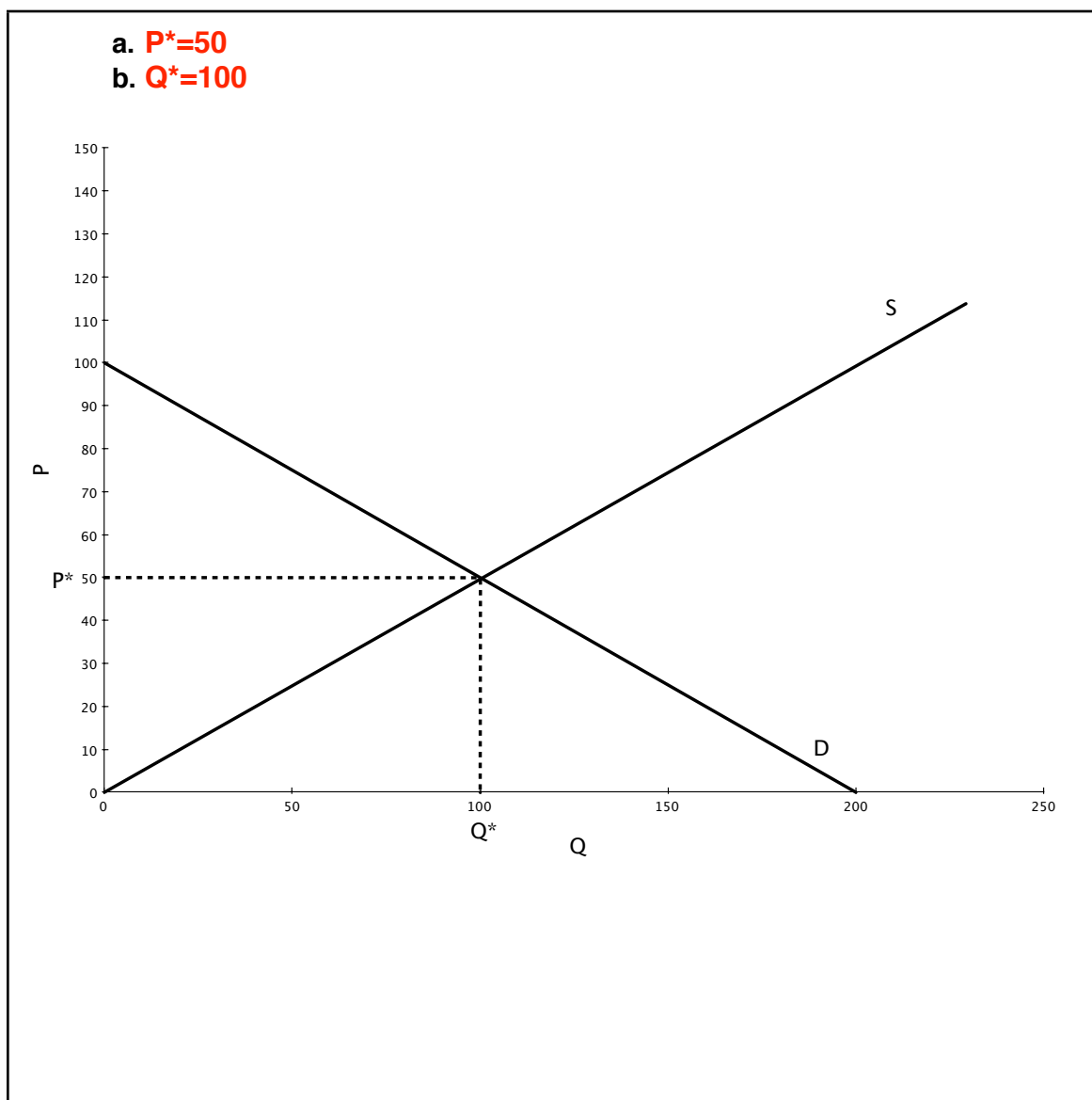
The price floor, since the firms will be able to capture the surplus that would otherwise become tax revenue for the case of the tax.

Question 13 - (30 points) Graphs are not necessary in this question for most items, but they always help. **Answer the items in the areas right below their descriptions.** Suppose that the demand and supply functions for iron in the US are:

$$Q_D = 200 - 2P$$

$$Q_S = 2P$$

- Calculate the equilibrium price P^*
- Calculate the equilibrium quantity Q^*
- Draw a graph with the demand and supply curves, indicating clearly the **values in the axes, the intercepts, P^* and Q^*** .



d. Calculate the **price elasticity of demand** at the equilibrium. Is it elastic, inelastic or unit elastic?

Elasticity=1 (Unit elastic)

e. Calculate the value of the **consumer surplus** in this equilibrium

f. Calculate the value of the **producer surplus** in this equilibrium

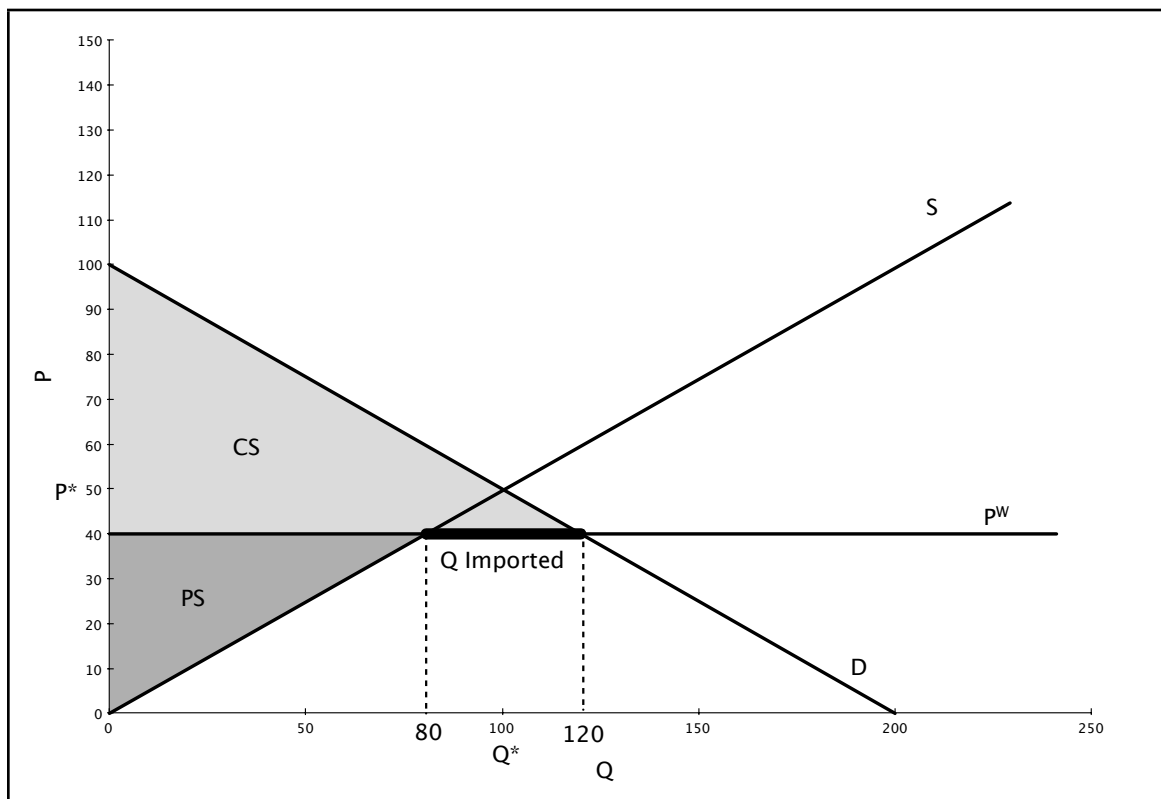
e. CS=\$2,500

f. PS=\$2,500

- f. Suppose that the economy opens to international trade and the world price for iron is **\$40**. Is the US going to **import or export** iron?
- g. What is the quantity of iron that is going to be **imported/exported**?

f. **Import**
 g. **Quantity imported = 120 - 80 = 40**

- g. Draw again the graph from item a) but now add the **world price**, indicate the **quantity imported/exported**, the **consumer surplus**, and the **producer surplus**.



- h. Calculate the value of the **consumer surplus** with international trade
- i. Calculate the value of the **producer surplus** with international trade
- j. Calculate the value of the **gains from trade** with international trade

- h. **CS= \$3,600**
- i. **PS=\$1,600**
- j. **Gains = \$200**

- k. Who will capture the gains from trade (consumers or producers)? Are consumers better off? Are producers better off?

The consumers will capture all gains from trade. Consumers are better off, producers are worse off.