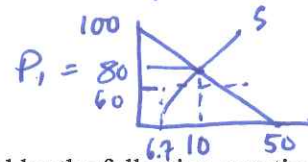


Please write all answers neatly and legibly.



1. (2 points) Consider the market for bananas that is initially described by the following equations where Q is the quantity of bananas and P is the price per unit of bananas:

Market Demand: $Q = 50 - (1/2)P$

Market Supply: $Q = (1/6)P - 20/6$

Suppose that something happens in this market and after all adjustment to this event, the market for bananas finds itself at a new equilibrium price of \$60 and a new equilibrium quantity of 6.7 units of bananas. Which of the following (circle your preferred answer) is most likely the cause of this new equilibrium?

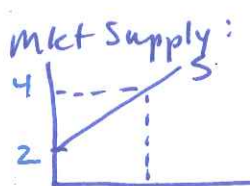
- (a) The market demand curve shifted.
b. The market supply curve shifted.

if S shifts right: $P \downarrow, Q \uparrow$
if S shifts left: $P \uparrow, Q \downarrow$
if D shifts left: $P \downarrow, Q \downarrow$
if D shifts right: $P \uparrow, Q \uparrow$
So $P \downarrow, Q \downarrow \Rightarrow$ So S shift happened

2. (2 points) Suppose the market for coffee beans initially has ten identical producers. The initial market supply curve is given by the following equation where Q is the quantity of pounds of coffee beans supplied and P is the price per pound of coffee beans:

Initial Market Supply Curve: $Q = 50P - 100$

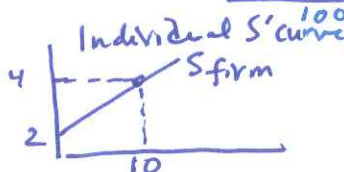
Suppose that two of these firms exit the coffee bean market and you have been asked to provide an equation that represents the new market supply curve given the exit of these two firms. You have also been asked to write this new market supply curve in slope intercept form. Show the work you did to find this new market supply curve in the space below.



$Q = 50P - 100$
 $50P = Q + 100$
 $P = \frac{1}{50}Q + 2$

So individual S curve for firm:
 $\frac{1}{10}Q = \frac{50P - 100}{10}$

$Q_{\text{firm1}} = 5P - 10$ or $5P = Q_{\text{firm1}} + 10$
 $P = \frac{1}{5}Q_{\text{firm1}} + 2$



If 8 firms then new mkt supply:

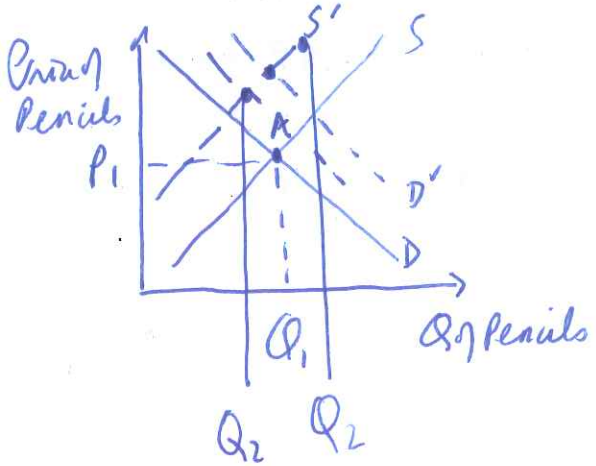
$8(Q_{\text{firm1}}) = 8(5P - 10)$
 $Q_{\text{mkt}} = 40P - 80$ or

$40P = Q_{\text{mkt}} + 80$
 $P = \frac{1}{40}Q_{\text{mkt}} + 2$

3. (2 points) Consider the market for pencils. Suppose this market is initially in equilibrium. Then, at the same time suppose that the price of graphite, a critical input used in the production of pencils increases and the number of school age children increases. Given this information and holding everything else constant, what do you predict will happen to the equilibrium price and equilibrium quantity in the market for pencils? Be specific in describing any shifts and/or movements in this market.

Supply shifts left

Demand shifts right



P will \uparrow relative to P_1
and Q will be indeterminate relative to Q_1
 $P \uparrow$ & Q may \uparrow, \downarrow or remain the same

4. Suppose the domestic market for pens in Nicia, a small economy, is described by the following equations where P is the price per pen and Q is the quantity of pens:

Domestic Demand: $Q = 540 - 90P$

Domestic Supply: $Q = 45P$

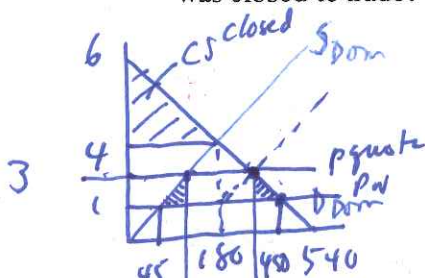
Suppose that the world price of pens is \$1 per pen.

- a. (1 point) Given the above information, if the pen market in Nicia opens to trade how many pens will be exported or imported by Nicia? Make sure your answer identifies whether Nicia will import or export pens.

If $P = P_w = 1 \Rightarrow Q_{Dom}^D = 540 - 90(1) = 450 \text{ pens}$
 $Q_{Dom}^S = 45(1) = 45 \text{ pens}$

Since $Q_{Dom}^D > Q_{Dom}^S$, Nicia will import pens. They will import $Q_{Dom}^D - Q_{Dom}^S = 450 \text{ pens} - 45 \text{ pens} = 405 \text{ pens}$

- b. (1 point) Given the above information, if the market for pens in Nicia opens to trade, what will be the change in consumer surplus compared to the level of consumer surplus when this market was closed to trade? Show how you found your answer.



$CS_{closed} = \frac{1}{2}(6-4)(180)$
 $= \frac{1}{2}(2)(180)$
 $= \$180$

$CS_{open} = \frac{1}{2}(6-1)(450)$
 $= \frac{1}{2}(5)(450)$
 $= 5(225) = \$1125$

$\Delta CS = CS_{open} - CS_{closed} = 1125 - 180$
 $\Delta CS = \$945$

$540 - 90P = 45P$
 $540 = 135P$
 $108 = 27P$
 $36 = 9P$
 $4 = P$

$\frac{540}{90} = 6$ if
 $\frac{225}{5} = 45$
 $\frac{1125}{945}$

- c. (2 points) Suppose that Nicia opens this market to trade while simultaneously implementing an import quota of 135 pens. Given this information, what is the value of the deadweight loss in this market due to the imposition of this quota? Show how you found your answer to get full credit.

$Q_{Dom}^S + \text{quota} = Q_{Dom}^D$

$45P + 135 = 540 - 90P$

$135P = 405$

$P = 3$

If $P = 3 \Rightarrow Q_{Dom}^S = 45(3)$

$Q_{Dom}^S = 135$

If $P = 3 \Rightarrow Q_{Dom}^D = 540 - 90(3)$

$Q_{Dom}^D = 270$

$135 \overline{) 405}$
 405

$DWL = \frac{1}{2}(3-1)(90 \text{ units}) +$
 $\frac{1}{2}(3-1)(180)$
 $= \$90 + \$180 = \$270$