Problem Set 3

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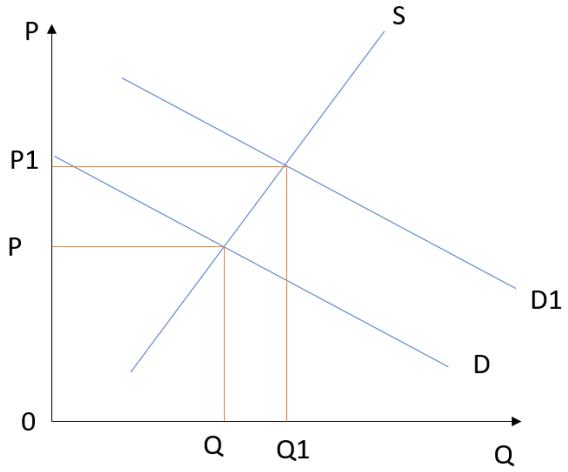
Section B

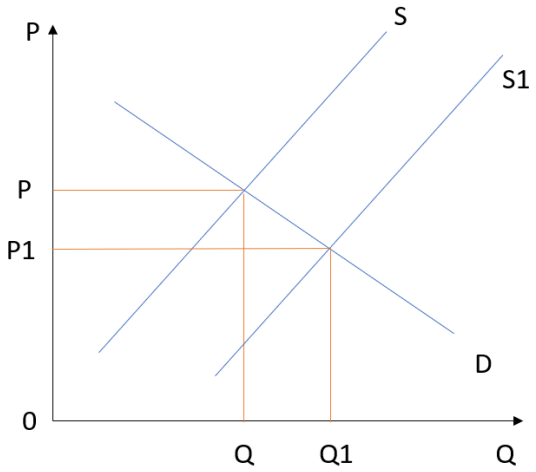
1.
a.

As China's nouveau riche develop a taste for art, demand for artworks by van Gogh would increase, shifting the demand curve to the right. Equilibrium price and quantity demanded would both increase.



perfectly inelastic supply curve

b.
A technological improvement in the production of salt would see an increase in supply of salt, hence shifting the S curve to the right. Equilibrium price would decrease and quantity demanded would increase.



perfectly inelastic demand curve

2.
a. Given that price elasticity of demand **(PED) = %△Qd / %△P** and
Expenditure = **Price** x **Quantity**

Bernado spends the same amount on gelato so his expenditure remains fixed. A percentage change in P must be matched by a proportionate change (in the opposite direction) in Qd. So, his PED for gelato is one.

use examples for this kind of questions
R&D to cut manufacturing costs => then students can receive lower price

b. Given that income elasticity of demand = **%△Qd / %△income**

As he spends the same amount of his income (one quarter of his income) on gelato, the %△income remains the same, so income elasticity of demand for gelato is one.

c. Bernado increases expenditure on gelato from a quarter of his income to half of his income. Since **Expenditure** = **Price** x **Quantity,** with an increase in spending and price of gelato remains the same, quantity demanded for gelato increases, so the demand curve would shift rightwards.

d. Given that price elasticity of demand **(PED) = %△Qd / %△P**

An increase in Qd would increase PED, as P remains the same, making the demand for gelato more elastic.

e. Given that income elasticity of demand = **%△Qd / %△income**

As Bernado spends twice as much of his income on gelato, his change in income would decrease, and his income elasticity of demand would increase.

f. Concepts used include price elasticity of demand, income elasticity of demand and expenditure. Their formulas are,

Price elasticity of demand = **%△Qd / %△P**
Income elasticity of demand = **%△Qd / %△income**
Expenditure = **Price** x **Quantity**

3.

a. It is because of the common belief held by customers that it is “not socially acceptable to raise prices in case of emergency”. By keeping prices at normal levels, supermarkets hope to “retain customer loyalty” in the long run. Of course by increasing prices supermarkets would receive significantly higher revenues since price elasticity for demand for necessity goods is inelastic during emergencies. However, this will decrease demand in the long run because consumers will switch to other supermarkets who are perceived to be “fairer” and more “ethical”. Since supermarkets’ objective is to maximise profits in the long run, it makes more sense to keep prices low in the short run in order to maintain current consumer base in the long run rather than making a quick buck which would also ris the company being in the red due to loss in customers.
b. They limited the amount each customer can buy to prevent shortage of supplies.
c. The two have different objectives and motives. As mentioned in part (a), besides having the objective of maintaining a fair and ethical public image, supermarkets would also want to preserve relationships with their clients in the long run since long-term deals with these clients make up a substantial proportion of their revenue. This is also a stable source of revenue in the long run so supermarkets do not want to jeopardise their relationships with the clients. This is different from individuals who sell goods at high markups during emergencies, as their objective is mainly to maximize profits and revenues in the short run. In the short run, since demand is fairly inelastic, these individuals can raise prices to reap greater revenue and profits.
d. Under cases of extreme shortages of essential goods, the ability to obtain a good should not be solely dependent on an individual’s willingness and ability to pay for the good. During extreme shortages, prices of essentials would be raised significantly if the price mechanism is working with no intervention. In this scenario, only those with the ability to pay would be able to obtain the good; It does not matter how much value a person thinks a good has, if they do not have the financial means (ability to pay) they would not be able to obtain that good anyway. Hence only those who are wealthy enough would be able to obtain the good, the rest would be excluded and this is not fair as every person should have access to essentials no matter the amount of money they have in their pockets

4.
Firstly, Deng Xiaoping raised the price paid by the state for crops by nearly a quarter. This means that the level of price ceiling for grains increased. This reduced shortage in agricultural output as suppliers of agricultural products were more incentivised to produce more surplus in order to sell to other regions, hence output which is equal to Q^S increased.

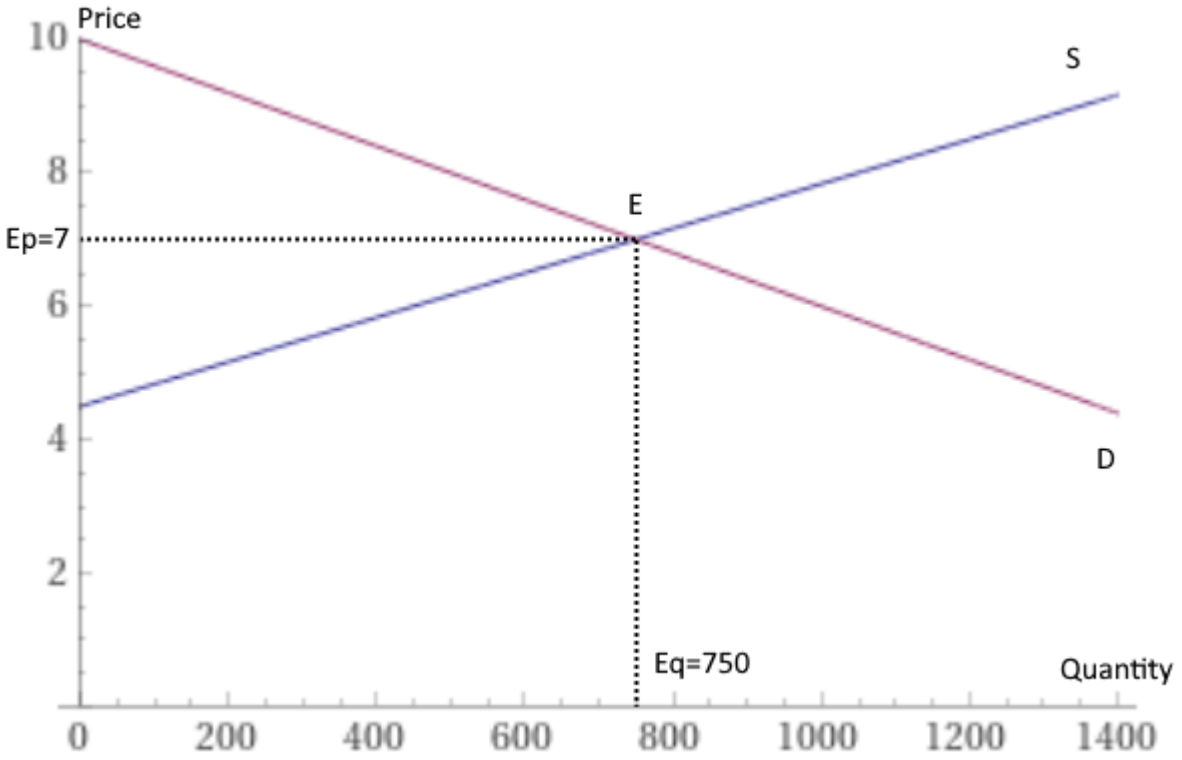
By 1983, 98% of collectives also started subcontracting land to individual households. This means that each individual household had their own land that they could consider as theirs as opposed to collective land. They had the incentive to work their lands in order to pay their rent and enjoy the profits of their work, as opposed to working for the collective where the fruits of labour of one household would also be enjoyed by other households in the collective. Furthermore, as the profits generated by one household would also be enjoyed by them, they had the incentive to work efficiently, maximising output for every unit factor of production through better farming techniques. The result would be an increase in supply of agricultural production

Lastly, China also eased restrictions on trade between regions. Each region was then free to do anything they want with their surplus of agricultural products, and regions that lack agricultural products could buy them from other regions. Furthermore, production quotas were abandoned. As each region would also have to satisfy the demand for agricultural products from other regions, demand for agricultural products increased in each region. The result was an overall increase in demand for agricultural products in China
Furthermore, the result was a trade based on comparative advantage; each region produced goods that they have the lowest opportunity cost in. This would be beneficial for all regions and the result would be an increase in national agricultural output

5.a

Equation for Supply:
P(Price) = Qs(Quantity Supplied) x Gradient(1/Elasticity) + C, C is a random constant
P = Qs(1/300) + 4.5

Equation for Demand:
P = Qd x Gradient + C, C is a random constant
P = Qd(-1/250) + 10



equilibrium price = $7
equilibrium quantity = 750 units

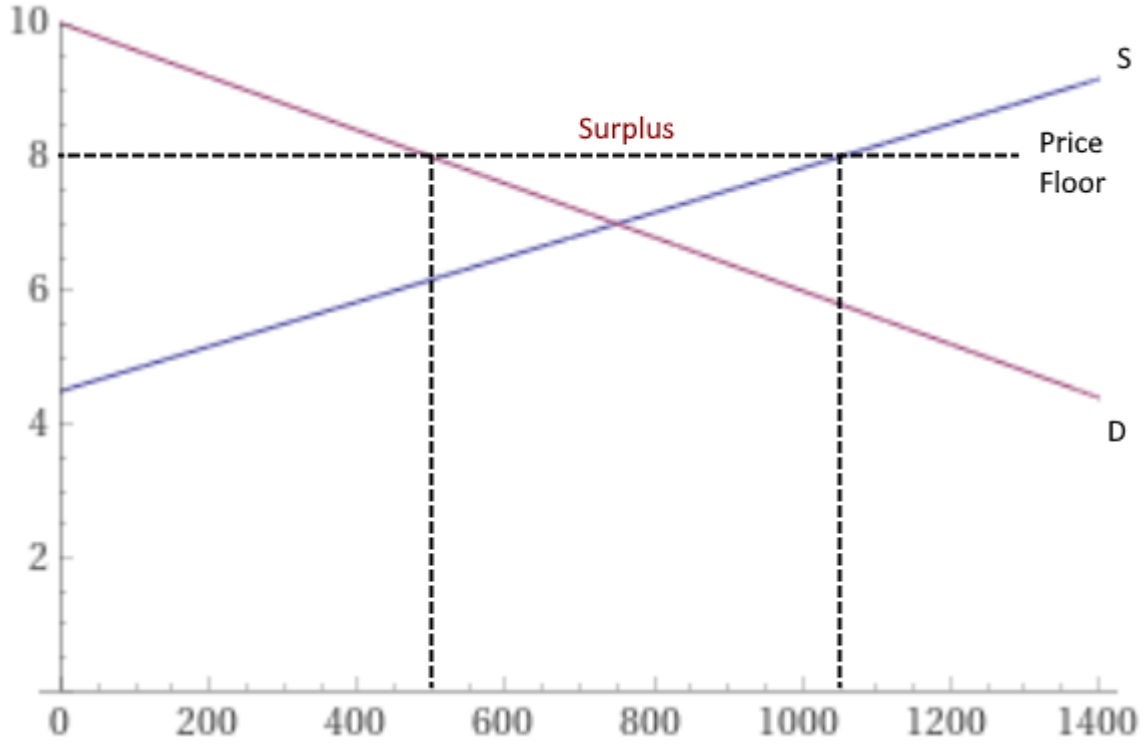
5.b

New market price is now 7+1=$8 (binding price floor)

At $8:

-Qty demanded is 500

-Qty Supplied is 1050



There is a surplus and only 500 units of toy airplanes will be transacted.

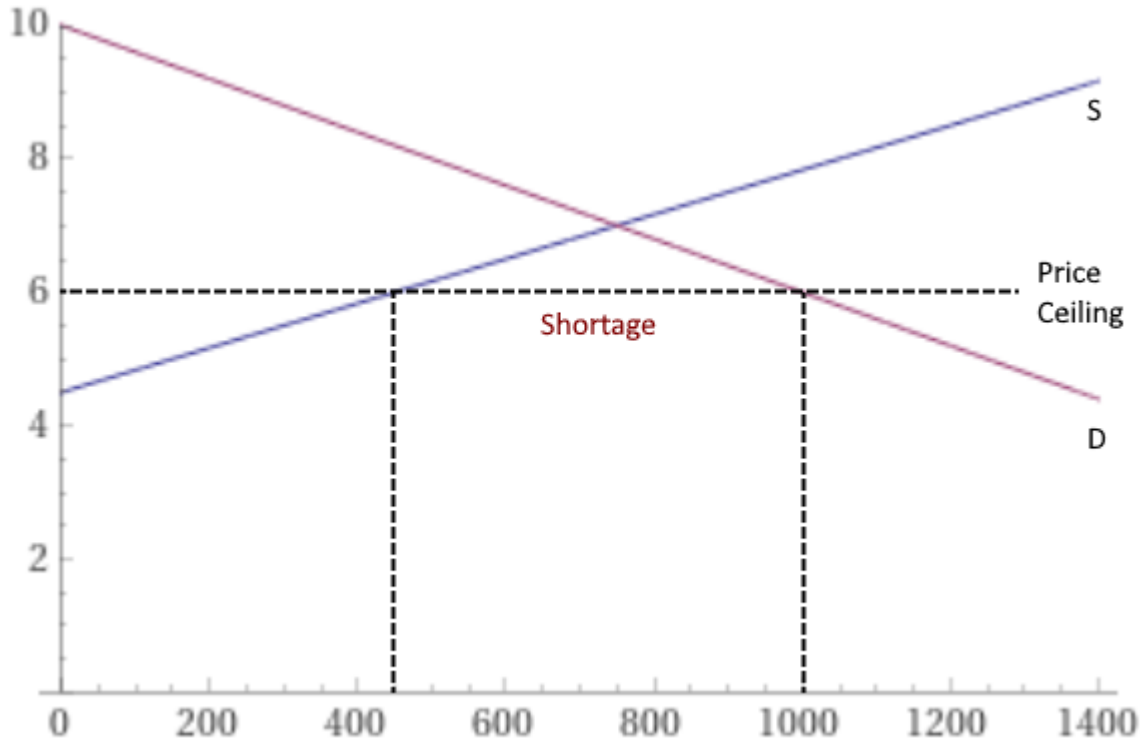
5.c

New market price is now 7-1=$6 (binding price ceiling)

At $6:

-Qty demanded is 1000

-Qty supplied is 450

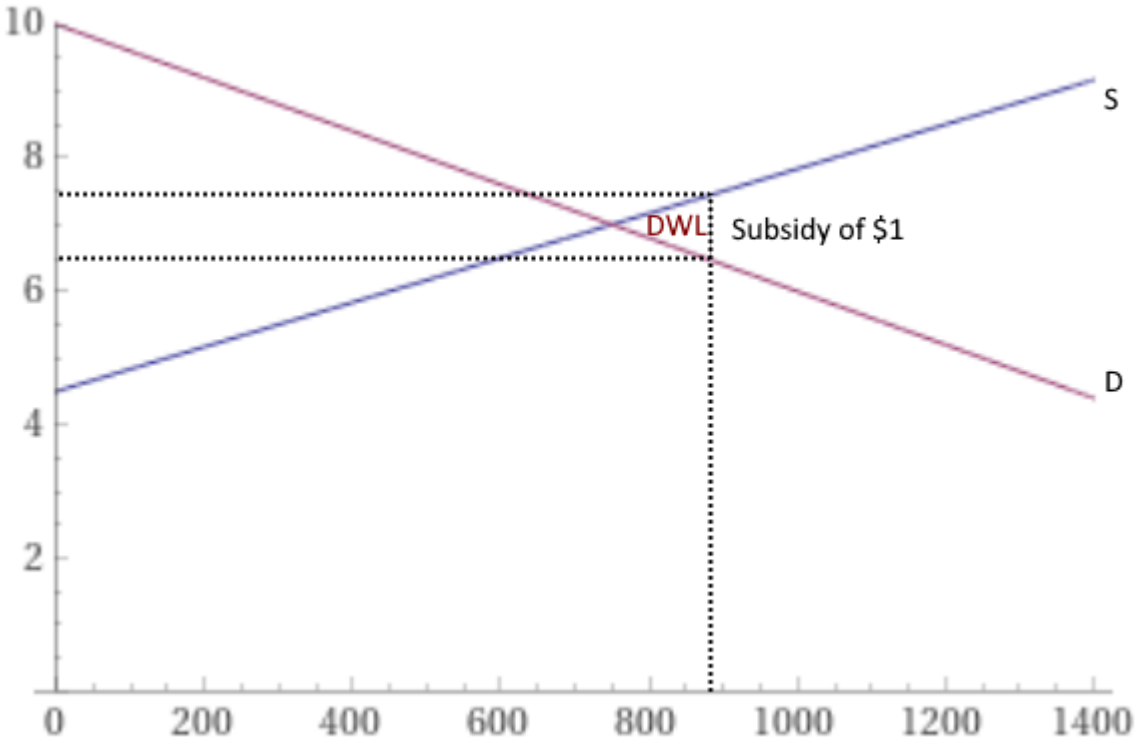


There is a shortage and only 450 units of toy airplanes will be transacted.

5.d

A policy that both the manufacturers and the students prefer would be government subsidies. This is going to increase both the producer and consumer surplus, albeit at a cost of generating some deadweight loss through wasteful trade.

Suppose that the government grants a subsidy of 1 dollar per unit of toy airplane sold. Without specifying who the subsidy is handed out to:



New quantity transacted = 886.36
New price paid by students = $6.4545
New price received by manufacturers = $7.4545 (from wolfram alpha)

Input interpretation

solve

$b = \frac{a}{300} + 4.5$

$y = -\frac{x}{250} + 10$

$b = y + 1$

$a = x$

Result

Approximate form | Step-by-step solution

$x = \frac{9750}{11}$ and $y = \frac{71}{11}$ and $b = \frac{82}{11}$ and $a = \frac{9750}{11}$

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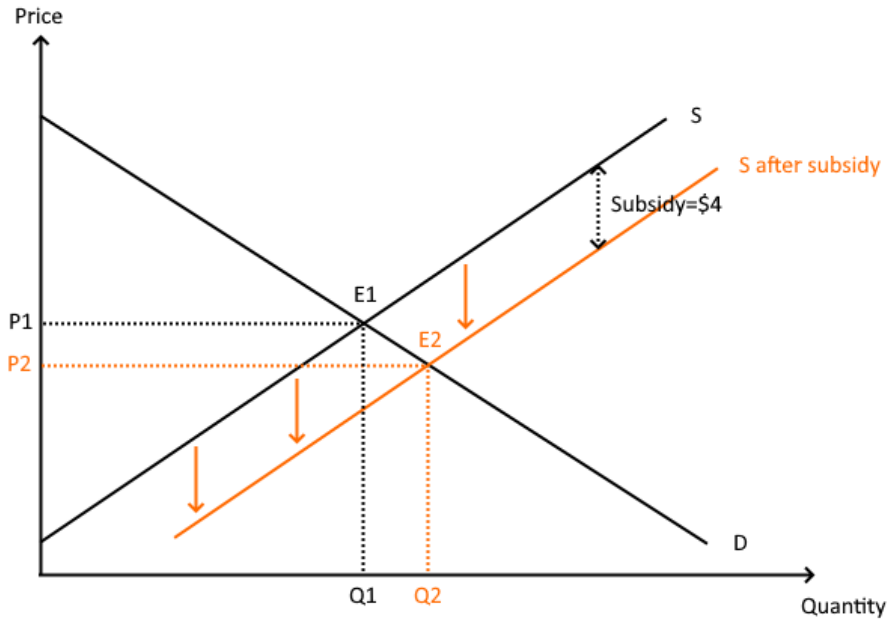
Both the students and manufacturers would prefer this as both producer and consumer surplus will be increased. They would not care about the deadweight loss incurred from the subsidies.

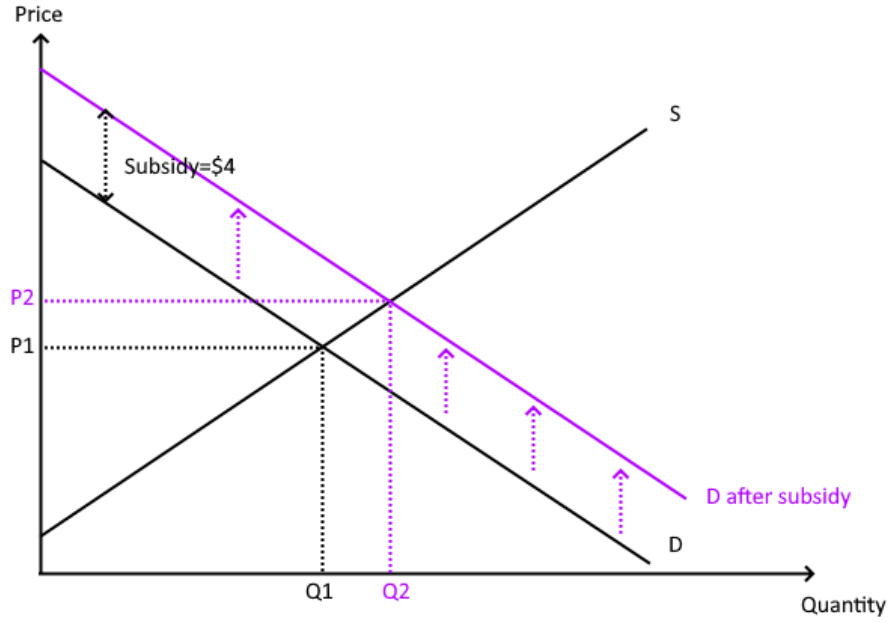
6.a

Suppose that the subsidy is given to producers:



At every price point the cost of production has been effectively lowered by $4. This shifts the supply curve down (as the producers are now more willing to sell), and results in lower equilibrium price (P2) and higher equilibrium quantity (Q2).

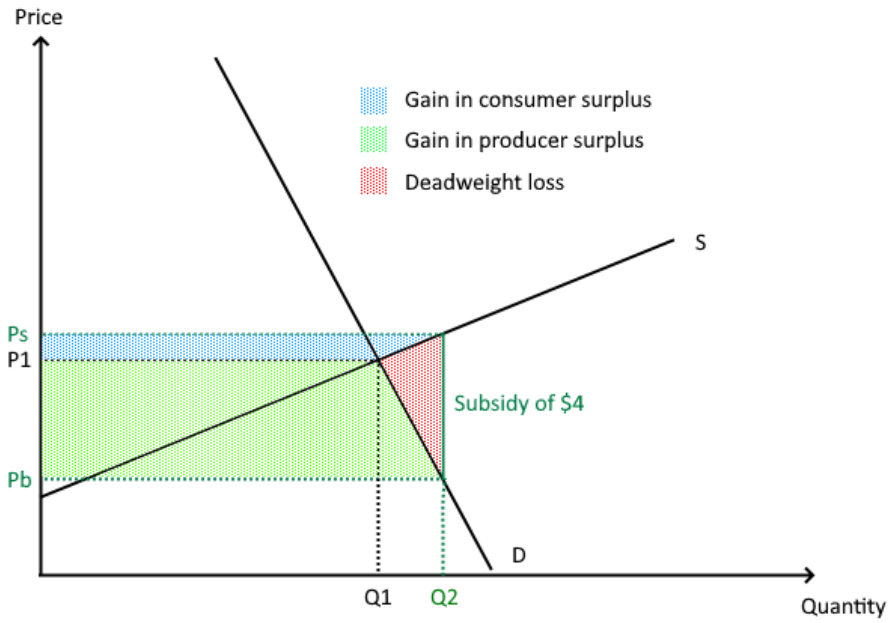
Suppose that the subsidy is given to consumers:



At every price point the price has been effectively lowered by $4. This shifts the demand curve ip (as the consumers are now more willing to pay), and results in higher equilibrium price (P2) and higher equilibrium quantity (Q2).

6.b

If the demand for umbrellas is more price elastic than the supply of umbrellas:



We can see that gain in consumer surplus is less than gain in producer surplus.This means that the producers shared a greater subsidy incidence.

6.c

Looking at this from the short run, both producers and consumers will benefit from such arrangements. This is because both CS and PS have increased. The only party to lose out from this is the government as it has to pay out the subsidies.

However, the money used to pay out subsidies ultimately comes from tax income of the government. With higher subsidies, government expenditures will increase. In order to keep government reserves at a healthy level, the government will have to increase the tax rate at some point in the future, something that benefits neither consumers nor producers.

Assuming that umbrellas have no externalities and the market for umbrellas is perfectly fine as it is, government intervention then benefits nobody as subsidies will only serve to encourage wasteful trade (while the resulting taxes will only discourage gainful trades).

6.d

1. Subsidies will have the same effect on the market regardless of whether they are given to producers or to consumers. Consumers will pay lower prices while producers will receive higher prices, with the government bearing the cost of the subsidy and the society incurring a deadweight loss.
2. The subsidy incidence depends on the relative price elasticity of demand and supply. If supply is more price elastic than demand, producers gain more from the subsidies (probably because they would be able to enter the market or adjust output much more quickly), vice versa.
3. Money does not appear from nowhere, and the subsidies will have to be paid for in the form of higher taxes in the future. Unless there is good reason for the government to interfere, subsidies (and taxes for that matter) will lead to further inefficiencies in the economy.