Answer on question #62317 - Economics / Macroeconomics

Question: In a perfectly competitive market, the market demand curve is given by Qd = 200 -5P, and the market supply curve is given by Qd =35P.

i. Find the equilibrium market price and quantity demanded and supplied in the absence of price controls.

Solution:

equilibrium: **Qd(demand) = Qd(supply)**

200 – 5P = 35P

200 = 40P

P = 5

Q = 35 * 5 = 175

Answer: equilibrium price = 5, equilibrium quantity demanded = 175

ii. Suppose a price ceiling of $2 per unit is imposed. What is the quantity supplied with a price ceiling of this magnitude? What is the size of the shortage created by the price ceiling?

Solution: With the imposed price ceiling of $2 the producers will only supply 35 * 2 = 70 units, at the same time, the consumers will be willing to buy 200 – 5 * 2 = 190 units. Therefore, the shortage is 120 units.

Answer: quantity supplied = 70, size of the shortage = 120

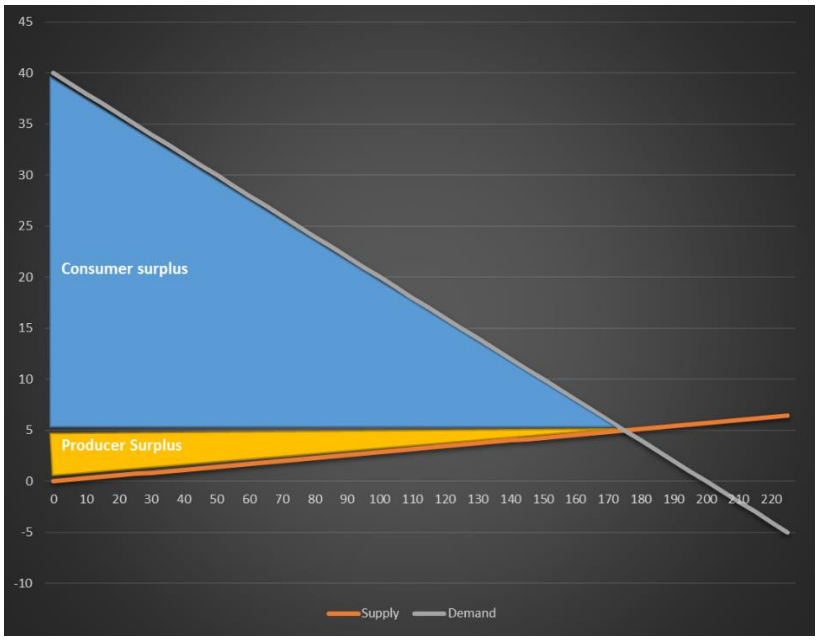
iii. Find the consumer surplus and producer surplus in the absence of a price ceiling.

Solution: the consumer surplus is the area on the PQ graph, limited by the triangular with the vertexes at (Q=175, P=5), (Q=0, P=5), (Q=0, P=40).

The area is: (175 * 35) / 2 = 3 062.5

The producer surplus is the area on the PQ graph, limited by the triangular with the vertexes at (Q=175, P=5), (Q=0, P=0), (Q=0, P=5).

The area is: (175 * 5) / 2 = 437.5



Answer: consumer surplus = 3 062,5; producer surplus = 437,5

iv. Find the consumer surplus and producer surplus under the price ceiling.

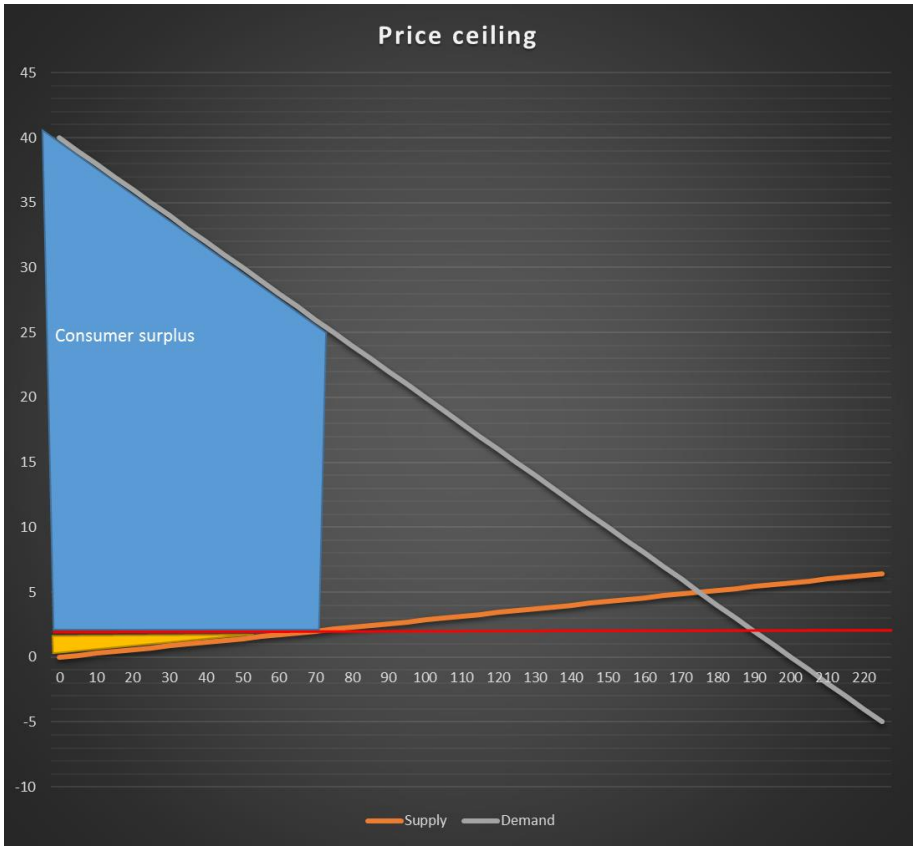
Solution:

the consumer surplus is the area on the PQ graph, limited by the trapezium with the vertexes at (Q=0, P=2), (Q=0, P=40), (Q=70, P=26), (Q=70, P=2).

The area is: (24 * 70) + (14 * 70) / 2 = 1680 + 490 = 2170

The producer surplus is the area on the PQ graph, limited by the triangular with the vertexes at (Q=70, P=2), (Q=0, P=0), (Q=0, P=5).

The area is: (70 * 2) / 2 = 70



Answer: consumer surplus = 2 170; producer surplus = 70