. At Fenway Park, home of the Boston Red Sox, seating is limited to about 38,000. Hence, the number of tickets issued is fixed at that figure. Seeing a golden opportunity to raise revenue, the City of Boston levies a per ticket tax of $5 to be paid by the ticket buyer. Boston sports fans, a famously civic-minded lot, dutifully send in the $5 per ticket. Draw a well-labeled graph showing the impact of the tax. On whom does the tax burden fall—the team's owners, the fans, or both? Why?

0. A market is described by the following supply and demand curves:

$$Q^S = 2P$$
$$Q^D = 300 - P$$

a. Solve for the equilibrium price and quantity.

b. If the government imposes a price ceiling of $90, does a shortage or surplus (or neither) develop? What are the price, quantity supplied, quantity demanded, and size of the shortage or surplus?

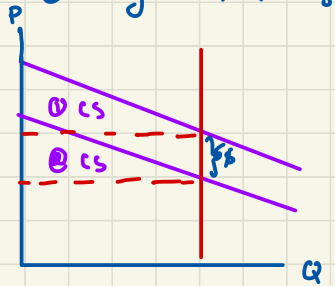
c. If the government imposes a price floor of $90, does a shortage or surplus (or neither) develop? What are the price, quantity supplied, quantity demanded, and size of the shortage or surplus?

d. Instead of a price control, the government levies a tax on producers of $30. As a result, the new supply curve is:

$$Q^S = 2(P - 30).$$

Does a shortage or surplus (or neither) develop? What are the price, quantity supplied, quantity demanded, and size of the shortage or surplus?

(d) given that $Q_s = 38{,}000$



Demand curve shift down - tax $5 per unit

∴ In this graph, SC is completely inelastic, therefore the entire tax burden is on the supplier need to reduce the price down, without changing Quantity supply in order to sell the same Q.

$Q_s = 2P \rightarrow P = \frac{Q_s}{2}$

$Q_D = 300 - P \quad P = 300 - Q_D$

(a) equilibrium price and quantity

① Find P

$Q_s = Q_D$

$2P = 300 - P$

$3P = 300$

$P = 100$

② Find Q

$Q_s = 2P$

$Q_s = 2(100)$

$Q_s = 200$

or $Q_D = 300 - P$

$Q_D = 300 - 100$

$Q_D = 200$

(b) Price ceiling of $90 ($P_{max}$) is below equilibrium price

Find Q_D

$Q_d = 300 - P$

$Q_d = 300 - 90$

$Q_d = 210$ #

Find Q_S

$Q_s = 2P$

$Q_s = 2(90)$

$Q_s = 180$ #

∴ $Q_D > Q_S$ (excess demand) To conclude, their are shortage in Q_S

$210 - 180 = 30$ units

C) Price floor is 90 $ (P_{min}) when equilibrium price is 100 $ (P_0), therefore the price floor is not binding in this case, because the aim of Price floor is to increase the market value, if we set price below equilibrium price, then the market will continue its mechanism at price = 100

∴ Neither surplus or shortage would develop.

D) Government levies tax on producer 30 $

$Q_S = 2(P-30)$, $Q_D = 300-P$

at End $Q_S = Q_D$

$2P - 60 = 300 - P$

$3P = 360$

$P = 120$

$Q_D = 300 - 120$

$= 180$

$Q_S = 180$ #

∴ Therefore, both suplus and shortage cannot be develop