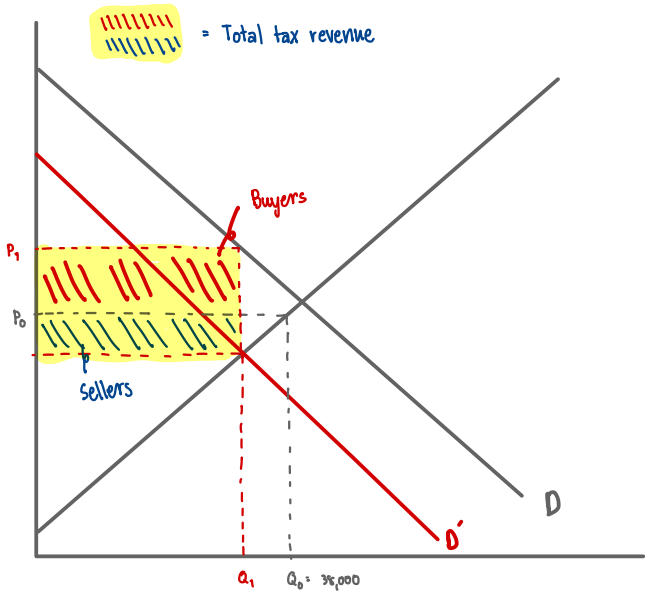
9. At Fenway Park, home of the Boston Red Sox, seating is limited to about 38,000. Hence, the number of tickets issued is fixed at that figure. Seeing a golden opportunity to raise revenue, the City of Boston levies a per ticket tax of $5 to be paid by the ticket buyer. Boston sports fans, a famously 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?



Ans: Tax burden falls on both team's owners and fans, but more burden falls on fans because the demand for tickets is inelastic (the number of tickets is fixed).

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

$$Q^S = 2P \rightarrow$$
$$Q^D = 300 - P \rightarrow P = 300 - Q_D$$

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:

$$Q^S = 2(P - 30). \rightarrow P = \frac{Q_S}{2} + 30$$

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

a) From equilibrium condition ; $\boxed{Q_D = Q_S}$

$$300 - P = 2P$$

$$3P = 300$$

$$P = 100$$

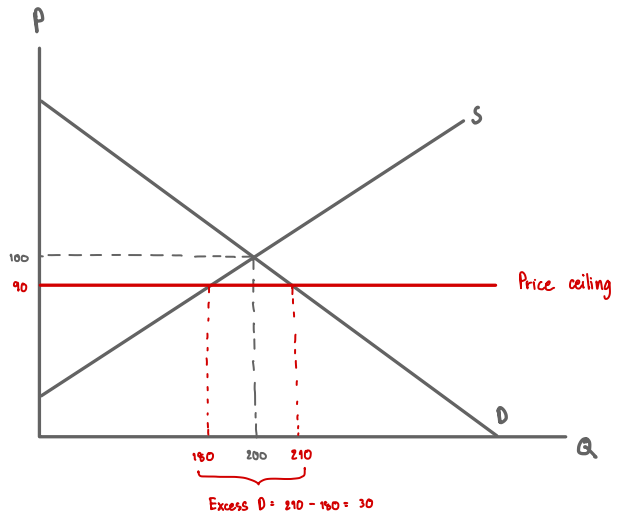
- substitute $P = 100$ to both Q_D & Q_S ; $Q_D = 300 - 100 = 200$

$$Q_S = 2(100) = 200$$

∴ Equilibrium price = 100 ※

Equilibrium quantity = 200 ※

b)

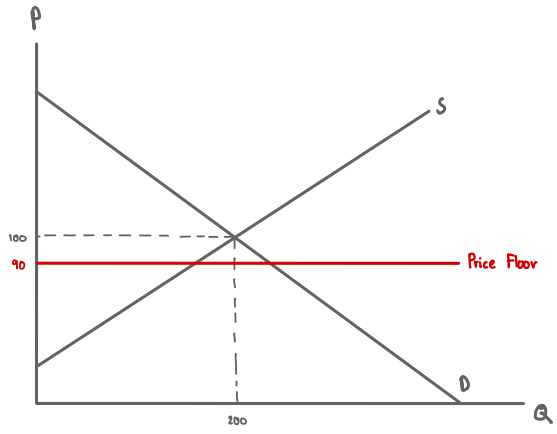


$Q_D = 300 - 90 = 210$

$Q_S = 2(90) = 180$

Ans : If the government imposes a price ceiling , we have a shortage . The price decreases from 100 to 90 The quantity demanded is 210 and quantity supplied is 180. And the size of shortage equals to 30. ※

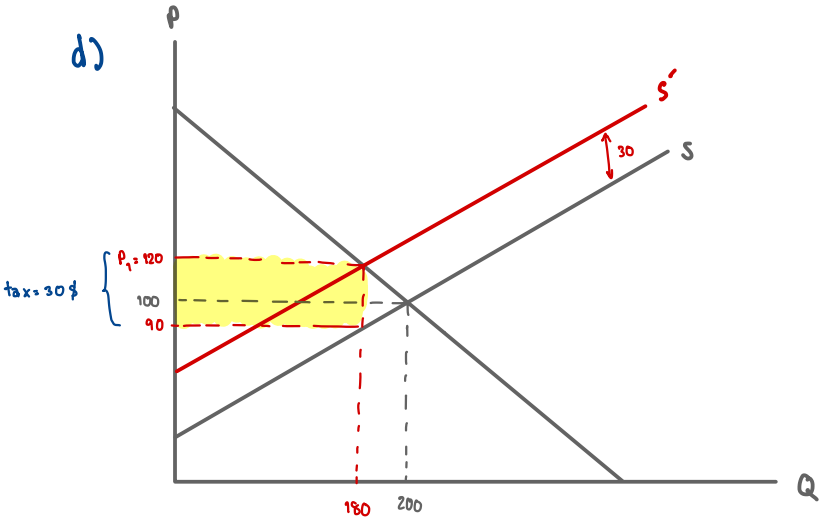
c)



Ans : If the government imposes a price floor , neither a shortage nor a surplus . The price floor doesn't affect the market because the price floor is below the eq. price . So, the value of

the price, quantity demanded and quantity supplied remain the same as in part a), which are 100, 200 and 200, as in order. ※

d)



- Before tax; if the price is 100 $, producers want to sell 200 units.

New eq:

$$Q_D = Q_S = Q_1$$

$$300 - Q_1 = \frac{Q_1}{2} + 30$$

$$600 - 2Q_1 = Q_1 + 60$$

$$540 = 3Q_1$$

$$Q_1 = 180$$

$$P_1 = 120$$

Ans: With the new supply equation, neither a shortage nor a surplus develops. The price increases from 100 to 120. The quantity demanded and the quantity supplied are the same, according to the equilibrium condition, which is 180 units. Also, the size of shortage is 30. ※