

## HW#6 Due March 4, 2021

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

$$Q^S = 2P$$

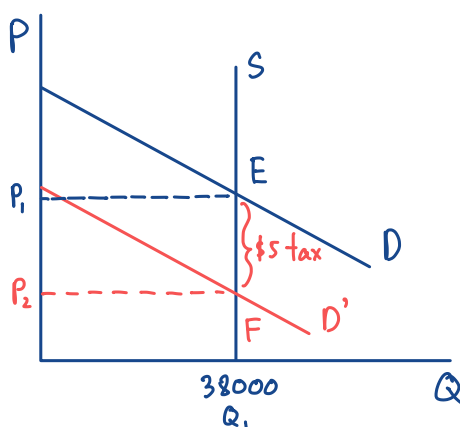
$$Q^D = 300 - P$$

- Solve for the equilibrium price and quantity.
- 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?
- 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?
- 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?

9.)



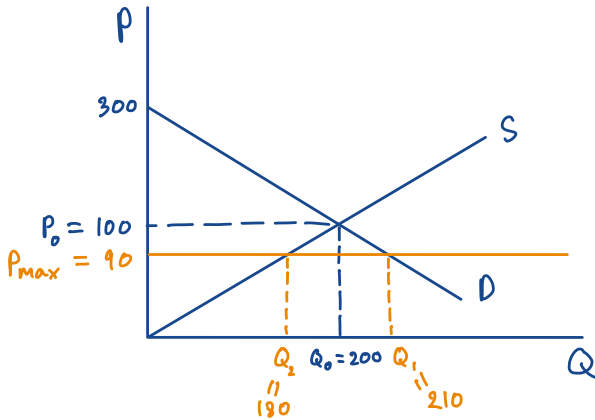
Since the ticket is fixed at 38,000, so the supply curve is vertical.

Before tax, price equilibrium is at  $E = (P_1, Q_1)$  which is the price buyers will pay and seller will receive. Once tax is imposed, the demand curve shift-left (down) by \$5.

The price will decrease from  $P_1$  to  $P_2$ , but quantity remain the same. So, the burden on buyer is zero. While the burden on seller is  $P_1 - P_2 = \$5$ . Because the seat is fixed, seller can't change in supply to response change in price. So the burden fall to the team's owners.

10.) a.)  $Q_s = 2P$   $Q_D = 300 - P$

At equilibrium  $Q_s = Q_D$   
 $2P = 300 - P$   
 $3P = 300$   
 $P = 100$



b.)  $P_{max} = 90$

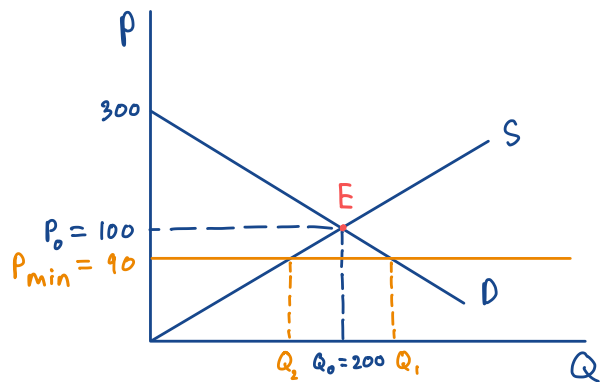
$Q_s = 2(90) = 180$   
 $Q_D = 300 - (90) = 210$  }  $Q_D > Q_s \Rightarrow$  shortage

Size of shortage =  $210 - 180 = 30$

c.)  $P_{min} = 90$  ,  $P = 100$

$Q_s = Q_D = 200$

At equilibrium point E, no shortage & surplus



d.) new  $Q_s = 2(P - 30)$

$2P - 60 = 300 - P$

$3P = 360$

$P = 120$

$Q_s = 2(120 - 30)$

$= 180$

$\therefore Q_s = Q_D = 180$

Neither shortage nor surplus.

