HW#8 Due March 1, 2022

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:

$$\text{Supply} - Q^S = 2P$$
$$\text{Demand} - Q^D = 300 - P$$

a. Solve for the equilibrium price and quantity.

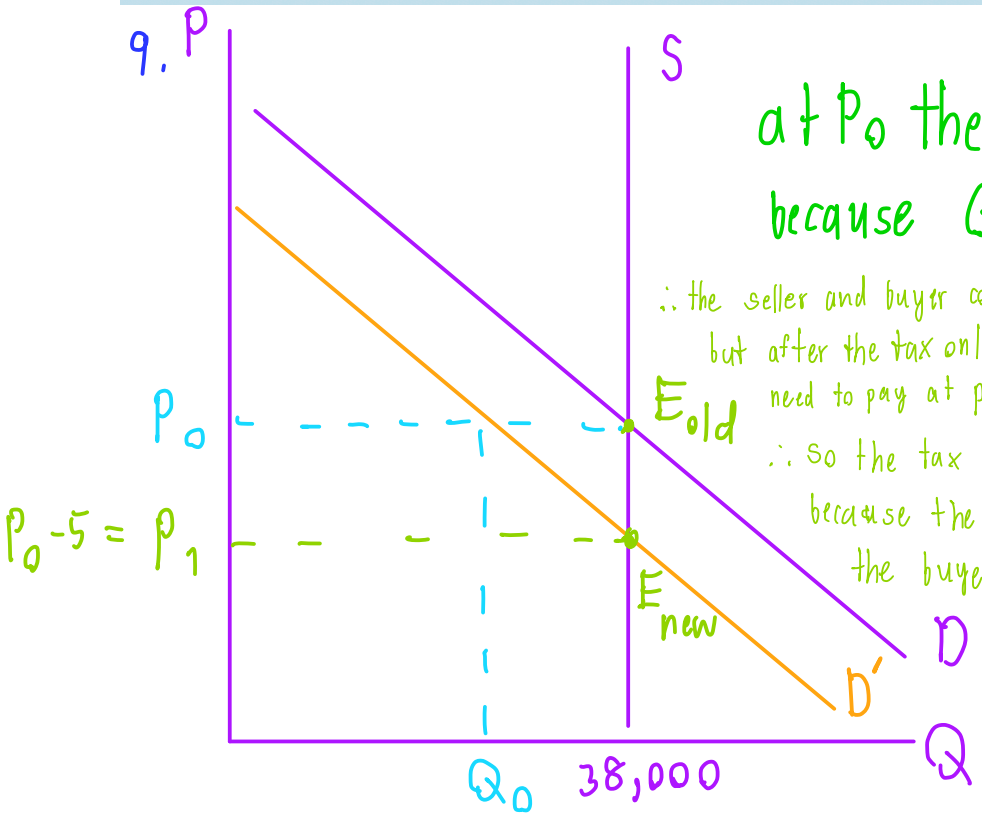
b. If the government imposes a price ceiling of $90, does a shortage or surplus (or neither) develop? What are the price, quantity supplied, quantity demanded, and size of the shortage or surplus?

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?



at P_0 there is excess supply because $Q_S > Q_D$

∴ the seller and buyer could get the price at P_0 (before the tax) but after the tax only seller will get the price at P_1 and buyer need to pay at P_0 add tax $5

∴ so the tax burden falls to the seller only because the seller gets the price $5 lower while the buyer pays the same price as the free-tax price.

$\frac{\eta_S}{|\eta_D|} = \frac{0}{|\eta_D|} = 0$ → buyer no tax burden at all!

10. $Q_S = 2P$ $Q_D = 300 - P$

a) equilibrium : $Q_S = Q_D$

$2P = 300 - P$

$3P = 300$

$P = 100$

find Q : $Q = 2P$

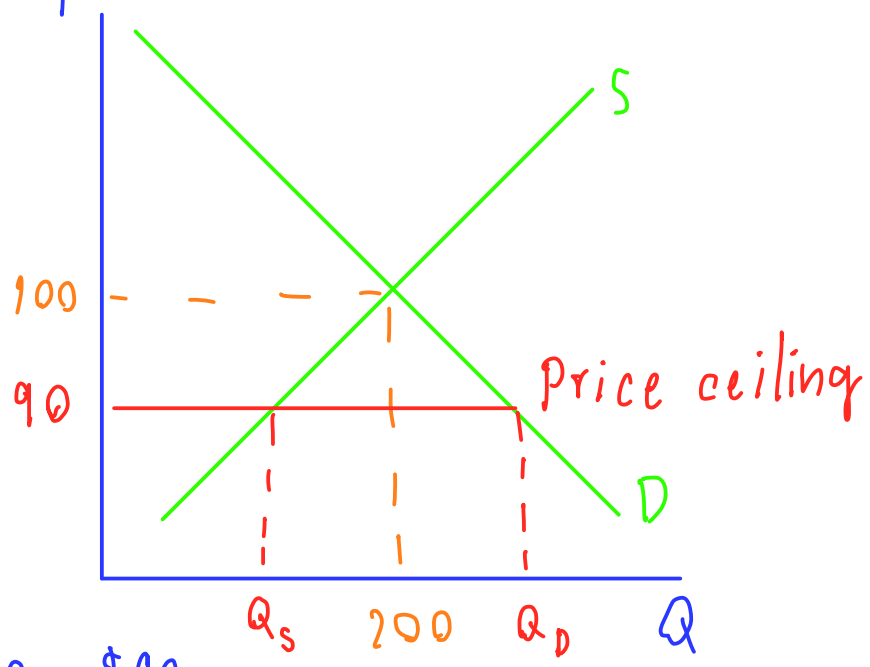
$Q = 2(100)$

$Q = 200$

$\therefore$ equilibrium = 100

quantity = 200

b)



price = \$90

↳ $Q_S = 2(90) = 180$

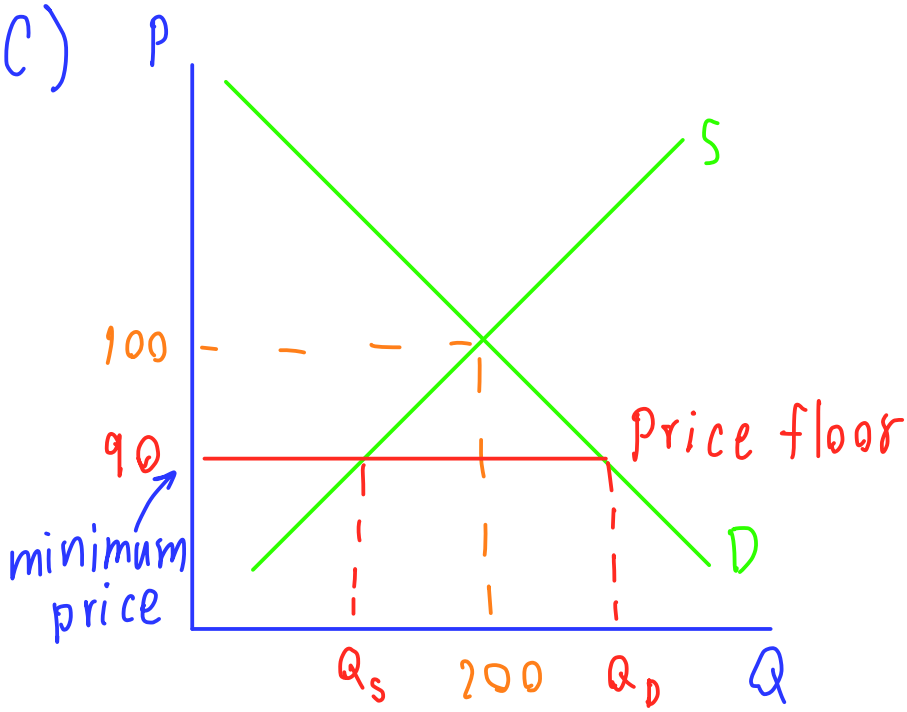
↳ $Q_D = 300 - (90) = 210$

$Q_D > Q_S$

$\therefore$ there is an excess demand

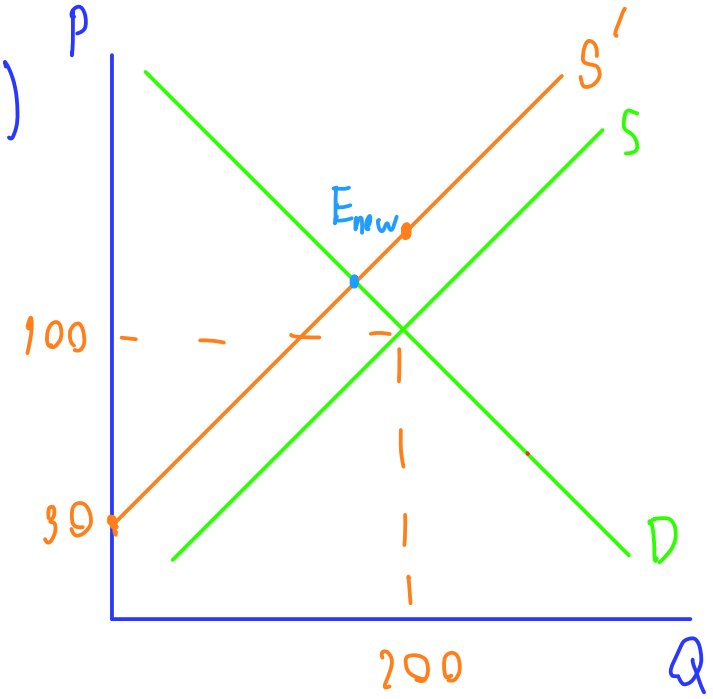
$= 210 - 180 = 30$ units

C)



at equilibrium, the market price, $100, is above a price floor $90 so no effect of this policy P = 100, Q = 200

d)



Old $Q_S = 2P \rightarrow P = \frac{1}{2}Q_S$

new $Q_S = 2(P-30)$

$= 2P - 60$

$\downarrow$

$P = \frac{1}{2}Q_S + 30$

at \$100 $Q_S = 2(100) - 60$

$= 140$ units

$Q_D = 300 - P$

$= 200$

$Q_D > Q_S$

∴ there is an excess demand at

$200 - 140 = 60$ units

New equilibrium $Q_D = Q_S'$

$300 - P = 2P - 60$

$360 = 3P$

$P = 120$

$Q = 180$

∴ the new equilibrium is at (120, 180)

price = 120 quantity = 180