

HW#6 Due October 6, 2020

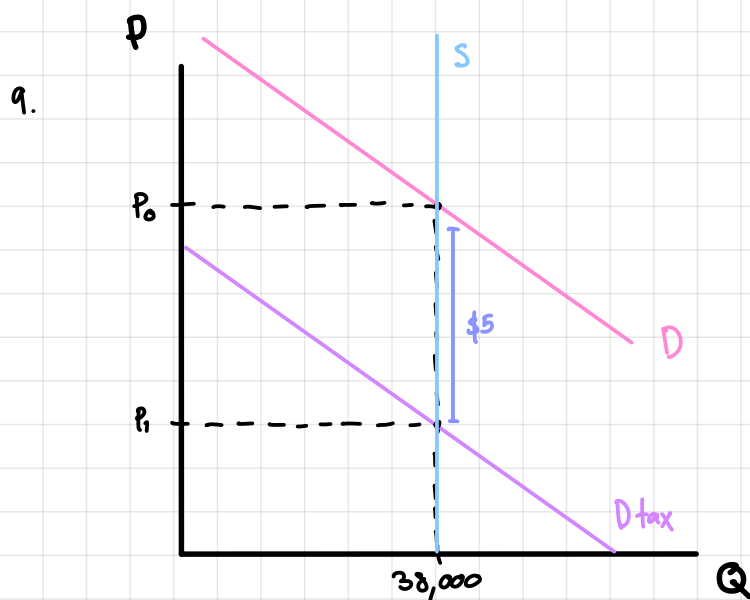
9. At Fenway Park, home of the Boston Red Sox, seating is limited to about 38,000. Hence, the number of tickets issued is fixed at that figure. Seeing a golden opportunity to raise revenue, the City of Boston levies a per ticket tax of \$5 to be paid by the ticket buyer. Boston sports fans, a famously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



A tax on consumers or Boston sport fans shifts down the demand curve vertically by \$5. The supply curve is elastic, it is a vertical linear line.

10. a)

$$\left. \begin{array}{l} Q_S = 2P \\ Q_D = 300 - P \end{array} \right\} Q_S = Q_D \text{ (equilibrium)}$$

$$\begin{array}{l} 2P = 300 - P \\ 3P = 300 \\ P = 100 \end{array} \quad \begin{array}{l} \text{the equilibrium price} = \$100 \\ \text{the equilibrium quantity} = 200 \end{array}$$

b) If the government impose a price ceiling of \$90, a shortage develops. Because the ceiling price (\$90) is below the equilibrium price (\$100). At the ceiling price of \$90, $Q_S = 180$ and $Q_D = 210$. So, consumers want to buy (30) more than the producers want to sell.

c) If the government impose a price floor of \$90, neither a surplus nor a shortage develops. The price floor (\$90) is lower than the equilibrium price (\$100). The quantity supplied and demanded will be the equilibrium of 200 units.

d)

$$\begin{array}{l} Q_S = 2(P - 30) \\ 2(P - 30) = 300 - P \\ 2P - 60 = 300 - P \\ 3P = 360 \\ P = 120 \end{array} \quad \begin{array}{l} Q_S = 2(P - 30) \\ = 2(120 - 30) \\ = 180 \\ Q_D = 300 - 120 \\ = 180 \end{array} \left. \vphantom{\begin{array}{l} Q_S \\ Q_D \end{array}} \right\} \text{equilibrium}$$

It neither develops a shortage or surplus.
The price is 120. The quantity supplied and demanded are 180.