

Homework #3

- 1.) Using $Q_{Dx} = 100 - 1 * P_x$ and $Q_{Sx} = -20 + 4 * P_x$,
 - a.) Solve for equilibrium P & Q.
 - b.) Plot these points on each curve: $P=0$, equilibrium P, and $2 * \text{equilibrium P}$.
 - c.) On a duplicate graph, impose a tax of \$5 (per unit) on firms, plotting some points on the new supply curve, drawing it carefully, and then identifying the new supply curve equation. (To draw the points on the curve, ask yourself what P would now be necessary for firms to supply ___ # of units. *Then, how can you adjust the equation to deal with that?*)
 - d.) Solve for the equilibrium quantity and price and clean up your graph as necessary. (Note both the price consumers pay and the amount firms get to keep post-tax.)
 - e.) On another graph, impose a \$5 tax on consumers instead of producers, and as detailed in question 1c, plot some points, draw the new demand curve carefully, and then identify the new equation.
 - f.) Solve for the equilibrium quantity and price and clean up your graph as necessary. (Again, note both the price consumers pay and the amount firms get to keep post-tax. Hint: P and Q—and the graphs—should be very closely related in parts d and f.)
 - g.) Illustrate and calculate the (per-unit and total) tax burden for consumers and producers. (You may want to enlarge portions of your graph for clarity.)
 - h.) Illustrate and calculate the loss of “consumer surplus” and “producer surplus” (not “surplus”) from the tax.