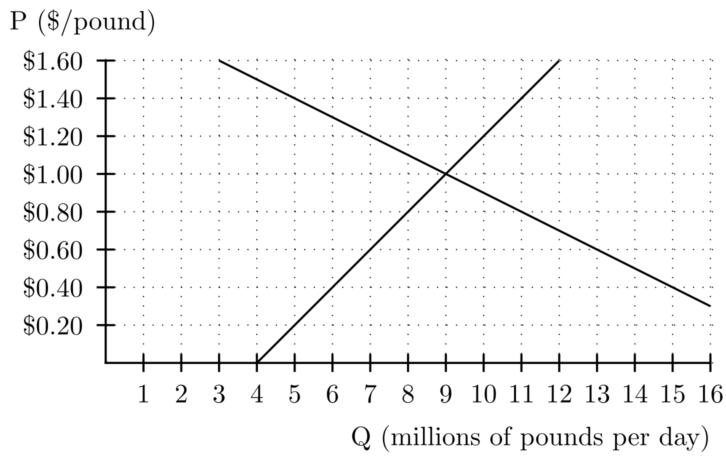
4. Below is a hypothetical market for oranges.



Suppose that the government decides to impose a sales tax of 50% on the sellers of oranges. (With a sales tax, if sellers sell a pound of oranges for $1, they get to keep $.50 and have to pay the government $.50; if they sell a pound of oranges for $2, they get to keep $1 and have to pay the government $1.)

(a) (5 points) Show the impact of this tax on the supply and demand curves above.

(b) (5 points) Explain (as if to a non-economist) why the tax shifts the curves the way it does.

(c) (5 points) Calculate the economic incidence of the tax, i.e., the amount of the tax burden borne by the buyers (T_B) and the amount borne by the sellers (T_S). Then calculate their ratio $\frac{T_B}{T_S}$.

(d) (5 points) Calculate the price elasticity of supply, ε_S, at the original (pre-tax) equilibrium. Then calculate the price elasticity of demand, ε_D, at the original (pre-tax) equilibrium. Then calculate their ratio, $\frac{\varepsilon_S}{\varepsilon_D}$. How does this ratio compare to the ratio of the tax burdens?

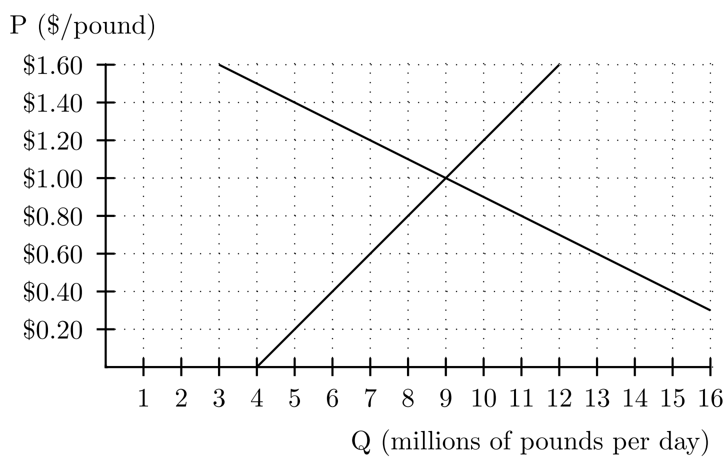
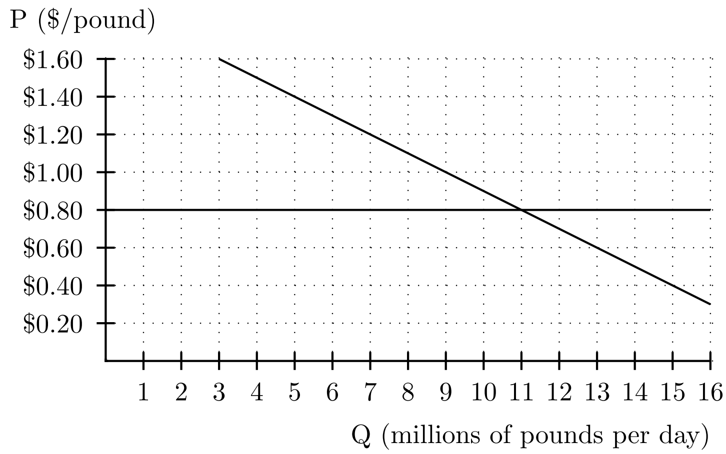


Figure 1: An extra graph in case you need it for anything...

5. Below is a hypothetical market for oranges.



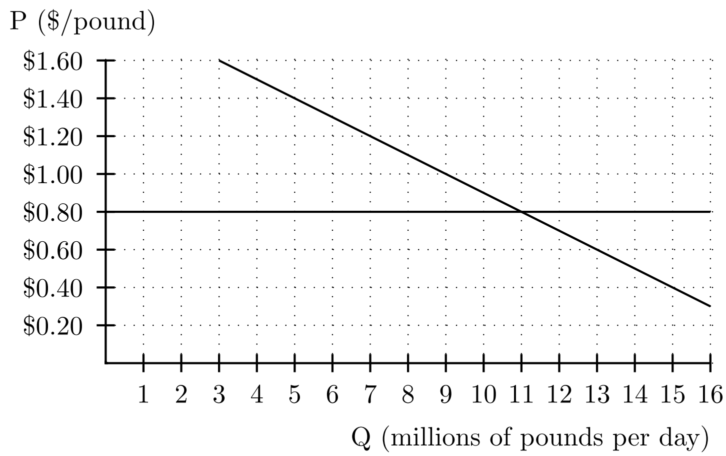
Suppose that the government decides to impose a per-unit tax of $.40 per pound on the buyers of oranges.

(a) (5 points) Show the impact of this tax on the supply and demand curves above.

(b) (5 points) Explain (as if to a non-economist) why the tax shifts the curves the way it does.

(c) (5 points) Calculate the economic incidence of the tax, i.e., the amount of the tax burden borne by the buyers (T_B) and the amount borne by the sellers (T_S).

(d) (5 points) How would the economic incidence of the tax change if the $.40 per-unit tax was placed on the sellers instead of on the buyers? Use the graph below to analyze this situation, and briefly explain your answer.



6. Consider a market with demand curve $q = 500 - 20p$ and supply curve $q = 50 + 25p$.

   (a) What is the original market equilibrium price and quantity?

   (b) What do the demand and supply curves look like with a $2 per-unit tax on the buyers?

   (c) With a $2 per-unit tax on the sellers?

   (d) With a 20% sales tax on the buyers?

   (e) With a 20% sales tax on the sellers?