Quiz #1

with answers

For questions 1-3, suppose the demand for bananas is given by $Q^d = \frac{500}{p}$, while the supply of bananas is given by $Q^s = \frac{p^2}{2}$.

1. Solve for the price elasticity of demand in equilibrium (hint: the slope of the demand curve is $-\frac{500}{p^2}$). First, the equilibrium is located at $p = 10$, $q = 50$. Then, price elasticity of demand is given by $-\frac{500}{10^2} \frac{10}{50} = -1$.

2. Solve for the price elasticity of supply in equilibrium (hint: the slope of the supply curve is p). Price elasticity of supply is given by $10 \frac{10}{50} = 2$.

3. Suppose the government imposes a per-unit tax of \$t on banana purchasers. How will the tax burden be spread between purchasers and sellers? Fraction $\frac{2}{2+1} = \frac{2}{3}$ will be paid by buyers, the remaining fraction $\frac{1}{3}$ by sellers.

4. Suppose that US producers of umbrellas have supply function $q^s_{US} = 2p$, while foreign firms supply umbrellas with supply function $q^s_f = \begin{cases} 0 & \text{if } p < 10 \\ p & \text{if } p \geq 10 \end{cases}$. Suppose the US demand for umbrellas is given by $q^d = 80 - p$. Solve for equilibrium price and quantity. Total supply (from both sources) is given by $q^s_{tot} = \begin{cases} 2p & \text{if } p < 10 \\ 3p & \text{if } p \geq 10 \end{cases}$. Let's guess that the equilibrium price will be above \$10. Then, setting supply equal to demand gives $3p = 80 - p$, or $p = 20$ and $q = 40$, with 30 of the units being supplied by US firms and 10 by foreign firms.

5. What is the likely effect of an import quota which allows foreign firms to import no more than 30 umbrellas? As foreign firms are only supplying 10 units in equilibrium, the quota will have no effect. A general answer saying that quotas increase price, make consumers worse off, and domestic producers better off will receive partial credit.