

Problem set 2, due Monday 9/30/13

1. Because the price of turtles increases from \$50 to \$60, the quantity demanded decreases from 500 to 400. Based on this, what is the price elasticity of demand at the original price of \$50? _____

2. The demand for mayonnaise is defined by the marginal benefit function $MB = 10 - \frac{1}{100}Q$, where Q is the quantity of mayonnaise consumed.
 - a) The demand function is $Q_d = \text{_____} - \text{_____}p$.
 - b) What is the price elasticity of demand for mayonnaise when the price is \$2? _____

3. The market for yam sauce is a competitive market. There are 100 buyers of yam sauce, and each of these buyers has the individual marginal benefit function $MB_i = 5 - 5q_i$. There are 20 sellers of yam sauce, and each of these sellers has the individual marginal cost function $MC_i = 1 + q_i$.
 - a) The demand function (from all buyers combined) is $Q_d = \text{_____} - \text{_____}p$
 - b) The supply function (from all sellers combined) is $Q_s = \text{_____} + \text{_____}p$.
 - c) In the market equilibrium, the price is _____ and the quantity is _____.
 - d) Consumer surplus is _____, producer surplus is _____, and total economic surplus is _____.

4. The market for blue fuzz is also competitive. Market demand is determined by the marginal benefit function $MB = 100 - \frac{1}{5}q$, and market supply by the marginal cost function $MC = 10 + \frac{1}{10}q$.
 - a) In the market equilibrium with no government intervention, the price is _____, the quantity is _____, consumer surplus is _____, producer surplus is _____, and total economic surplus is _____.
 - b) Now let's suppose that, in order to help the growers of blue fuzz, the government imposes a price floor of \$60 on the market. In the resulting market equilibrium, the price is _____, the quantity is _____, consumer surplus is _____, producer surplus is _____, total economic surplus is _____, and deadweight loss is _____.
 - c) On the left graph below, draw the market for blue fuzz, using different colors to shade in the areas representing consumer surplus, producer surplus, and deadweight loss.

5. The market for laser candy is also competitive. Market demand is determined by the marginal benefit function $MB = 130 - \frac{1}{3}q$, and market supply is determined by the marginal cost function $MC = 10 + q$.

a) In the market equilibrium with no government intervention, the price is _____, the quantity is _____, consumer surplus is _____, producer surplus is _____, and total economic surplus is _____.

b) Now, let's suppose that the government imposes a tax of \$40 per unit on laser candy. In the resulting market equilibrium, the price is _____, the quantity is _____, consumer surplus is _____, producer surplus is _____, government revenue is _____, total economic surplus is _____, and deadweight loss is _____.

c) On the right graph below, draw the market for blue fuzz, using different colors to shade in the areas representing consumer surplus, producer surplus, government revenue, and deadweight loss.

