Exam One Name: _____
PAI 723, Fall 2014
Professor John McPeak

The total quiz is worth 20 points. Each question is worth 2 points, and each sub question is worth an equal share of the two points.

1) The demand curve is given to you as Q=100-20*p.
    a. Fill out the following table (use the **relatively higher price / relatively lower quantity** pair in the elasticity calculation).

Price	Quantity	Elasticity
$1.00		----------
$1.50		
$2.00		
$2.50		
$3.00		

    b. Draw this demand curve with price on the y-axis and quantity on the x-axis. Identify the range over which the demand curve is inelastic and over which it is elastic.

2) Taxes. In all cases, describe the original pre-tax equilibrium price quantity pair, and following imposition of the tax the price paid by consumers, the price received by producers, the size of the tax revenue, and the quantity supplied / demanded.
    a. Illustrate on a graph the impact of a specific tax placed on producers.

    b. Illustrate on a graph the impact of a specific tax placed on consumers.

    c. Illustrate on a graph the impact of an ad valorem tax placed on consumers.

3) You are given that p=80-2*q is the inverse demand curve and p=30+8*q is the inverse supply curve.

a. What is the equilibrium price quantity pair if the market is perfectly competitive?

b. Illustrate and describe the impact of a price floor set at $78.

c. Is this price floor ‘binding’ or ‘non-binding’? In answering, explain what is meant by these terms.

4) Sky Zone indoor trampoline park is considering raising the annual pass cost from $2,000 to $2,200. If the number of annual passes sold last year at a price of $2,000 per pass was 25,000 and the best available information suggests that the price elasticity of demand for annual passes is -0.9, answer the following questions.

a. What is the predicted membership level after the price is raised?

b. Compare total revenue for Sky Zone at the annual pass fee of $2,000 and at the price of $2,200. Which is higher?

c. An executive of Sky Zone at a board meeting that is considering the price increase argues that the long run elasticity will be more elastic than short run elasticity. Where she learned this term and whether the estimate is correct we don't know but there we are. If long run own price demand elasticity is -2.0 will the increase in price under consideration lead to a long run increase in revenue?

5) I know the price of candy apples is $2.00 per unit and the price of funnel cakes is $3.00 per unit, the marginal utility of candy apples at a bundle the consumer is considering buying is 1 and the marginal utility of funnel cakes is 3. This bundle is on the budget line.

   a. Explain why the bundle the consumer is considering buying is not the optimal bundle.

   b. Is the optimal bundle going to be composed of more candy apples and fewer funnel cakes or fewer candy apples and more funnel cakes than the bundle under consideration? Illustrate using a graph and explain your reasoning below the graph.

6) If $p_1 = 20$, $p_2 = 20$, and $Y = 400$

a. Draw the budget constraint.

b. Show how you can derive the price consumption curve for a given consumer's preferences (drawn as you like so long as they obey the properties of indifference curves discussed in class) from the price consumption curve using the example of $p_1 = 10$ all else constant, and $p_1 = 20$ all else constant

c. Show how to derive the individual's demand curve from the graph in (b).

7) Circle whether the statement is true of false:

a. A change in consumers' income causes a shift in the supply curve all else held equal.

TRUE FALSE

b. The Marginal Rate of Substitution (MRS)= $\frac{\eta}{\eta-\varepsilon}$.

TRUE FALSE

c. Where indifference curves slope upward the consumer views both goods as normal.

TRUE FALSE

d. In a two good world, both goods must be substitutes to avoid violating the "more is better than less" assumption about preferences.

TRUE FALSE

e. The Marginal Rate of Transformation (MRT) changes when one of the prices changes in a two good world all else held constant.

TRUE FALSE

f. An indifference curve represents all the bundles that give a consumer equal levels of utility.

TRUE FALSE

8) A food stamp policy is put in place in a state. For our representative consumer impacted by this policy, their initial income of Y is supplemented by a cash value of food stamps of $300. The initial budget constraint is $y = p_f \cdot f + p_o \cdot o$, where f is units of food, o is units of all other goods, and the two prices are subscripted by their commodity and are per unit.

   a. Draw the original budget line and the budget line after the food stamp policy is implemented.

   b. Illustrate on another graph the indifference curves for **a consumer for whom it does not matter whether he is given $300 in cash or $300 worth of food stamps** in terms of the optimal bundle he will consume after being given the food stamps.

   c. For your graph in (b), does MRT = MRS at the optimal bundle or not? Explain why it does or does not.

9) Compared to this time last year, the price per pound of quinoa has gone up by 8% and the quantity demanded has decreased by 16%. Corn Growers of America (CGA) is claiming credit for this decrease in quantity demanded as being due to an ad campaign they are currently running to encourage consumers to stick with tried and true " 'merican" corn and stay away from un-American quinoa recipes. The United States Department of Agriculture (USDA), which CGA repeatedly notes is run by community organizer Barack Hussein Obama, is claiming that the price increase reflects adverse production conditions in quinoa growing areas in the US this year compared to last year.

a. Graph the CGA's argument on a supply and demand graph for quinoa.

a. Graph USDA's argument on a supply and demand graph for quinoa.

b. Which explanation is more consistent with the facts given in the introduction to the problem above? Justify your answer.

10) Say that you know that the inverse demand curve for leaf blowers is: $p=400 - (1/2)*Q_d$ (where p is the price per leaf blower and Q_d is the quantity of leaf blowers demanded), and the (inverse) supply curve can be expressed in a similar fashion by $p=(1/2)*Q_s - 40$.

a) What is the equilibrium price quantity pair if the market for leaf blowers is perfectly competitive?

b) Leaf blowers are a major source of noise pollution which has led for calls to tax them to internalize the noise externality. If a specific tax of $10.00 is put on producers of leaf blowers to reduce this problem, what will be the new equilibrium quantity, price consumers pay, price sellers get, and tax revenue?

c) What is the incidence of tax on consumers in this case?

d) Illustrate your answers to a and b on a supply and demand graph and label all points and areas of interest.