ECON 310
Assignment #1
Quiz Date: Wednesday, January 30th

1. The demand and supply for catnip are given by the following tables:

Demand		Supply	
Price	Quantity	Price	Quantity
$0.50/lb	10 lb	$0.50/lb	4 lb
1.00	9	1.00	5
1.50	8	1.50	6
2.00	7	2.00	7
2.50	4	2.50	10
3.00	3	3.00	11

i. What quantity is sold in equilibrium, and at what price?

7, $2.00

ii. Suppose that a sales tax of $2 per pound is imposed on catnip. What is the new market price of catnip? What price do demanders actually pay? What is the new equilibrium quantity?

Step 1: Reduce prices on demand schedule by $2.00

Step 2: Find new P&Q on demand that match original P&Q on supply

This happens at a Q= 4 and p= $0.50 (note, on old demand, p= 2.50 when q=4, but we've reduced price by $2.00, so now we get .50.) This is the market price.

Demanders actually pay the market price + tax, so they pay $0.50 + 2 = $2.50

iii. Suppose that an excise tax of $2 per pound is imposed on catnip. What is the new market price of catnip? What price do suppliers actually collect? What is the new equilibrium quantity?

Step 1: Increase prices on supply schedule by $2.00

Step 2: Find new P&Q on original demand that match new P&Q on supply

This happens at a Q= 4 and p= $2.50 (note, on old supply, p= .50 when q=4, but we've increased price by $2.00, so now we get 2.50.) This is the market price.

Suppliers actually collect the market price - tax, so they collect $2.50 - 2 = $.50

iv. As a consumer (demander) of catnip, would you prefer to live in a world with a sales tax or with an excise tax? What about if you were a supplier?

I'd be indifferent. Even though the market price is lower with a sales tax ($0.50), I still pay $2.50 since I have to pay the tax. The economic burden of the tax is the same regardless of whether or not the legal burden is put on demanders (sales tax) or suppliers (excise tax). If I was a supplier, the same logic follows- I only collect $0.50 in either case. So, I'd be indifferent.

2. Chapter 1, Problem Set 14 (page 29) *Note: in edition 7, this is problem 15, page 28*

a. Price of chicken falls, demand for beef falls (substitutes), so price and quantity fall
b. Price of land falls, supply of cows increases, so price falls and quantity increases
c. Beef increases longevity, demand for beef increases, so price and quantity increase
d. Income rises, demand for beef increases, so price and quantity increase
e. Price of leather rises, supply of beef increases, so price falls and quantity increases

3. Suppose the demand curve for a good is given by Q= -4P + 500 and the supply curve is given by Q = 2P – 100.

i. Find the equilibrium price and quantity.

-4p+500= 2p-100

600= 6p
100=p
q= 2(100)-100= 100

ii. Suppose the government imposes a $6 per unit sales tax. The tax's legal incidence is paid by _____demanders_____.

iii. Does this $6 sales tax change the demand or supply equation? Write the new equation.

Demand
To solve for new demand function:
Step 1: Since we have Q= f(P), we need to add in the tax as follows:
New demand equation= Q= -4(P+6) + 500
Step 2: Distribute over parentheses to get Q= -4p – 24 +500
Step 3: Simplify equation to end up with the new demand eqn: Q= -4p + 476

Alternative method. You could have also re-written the original demand equation as follows: Q- 500= -4p
Then, divide both sides by 4 to get : -1/4 Q + 125 = p
Now, you can just subtract tax to intercept because we have p = f(q)
New demand: p= -1/4Q + 119
If we re-arrange this equation, we get p – 119= -1/4Q
Multiply both sides by 4 to get: -4p + 476= Q

Note: We get exactly what we had with the first method!

iv. Find the new market price and equilibrium quantity.

Use your new demand function and old supply function.
-4p + 476= 2p-100
576= 6p
96=p
Q= 2(96) – 100= 92

v. What is the price actually paid by demanders? What is the price actually received by suppliers?

Market price is $96, but since this is a sales tax, demanders actually pay $96 + 6 = $102
Suppliers collect the market price of $96

vi. What percent of the tax is paid by demanders? Suppliers?

Of the $6 tax, demanders pay $2, because they paid $100 before tax and $102 after the tax, their tax burden is $2. Suppliers got $100 before tax and only receive $96 after tax, so they pay $4 of the tax. Therefore, demanders pay 2/6 or 1/3 of the tax while suppliers pay 4/6, or 2/3 of the tax.

vi. If the demand curve were steeper, demanders would pay a *_larger_____* percent of the tax.

vii. Suppose this tax was an excise tax. Who would pay the legal incidence of this tax?

Suppliers

viii. Under an excise tax, what is the new equilibrium price and quantity? What price do demanders pay? What price do suppliers receive?

Step 1: change supply equation to Q= 2(P-6) – 100, or Q= 2P – 12 -100
Step 2: use old demand and new supply to solve for new p & q
New q= 92, p = $102
Market price = $102 – this is what demanders pay
Suppliers actually receive $102 – tax, or 102 – 6= $96

ix. If you are a demander, under which scenario would you prefer to be taxed? Why?

I'd be indifferent. With sales tax, market price is $96, but I pay 96+6= $102, which is the market price I pay under an excise tax scenario. Since the economic burden of the tax is the same, I am indifferent between the two legal scenarios.

3. Chapter 2, Numerical Exercise N1

A)

	Rewiring	*Paneling*
Electrician	*1/2 panelings*	*2 rewirings*
Carpenter	*2/3 panelings*	*3/2 rewirings*

B)
Rewiring: electrician (1/2 < 2/3)
Paneling: carpenter (3/2 < 2)

C) If no trade, electrician spends 5 + 10 = 15 hours
Carpenter spends 10 + 15 = 25 hours

If more efficient does all of job,
Electrician spends 5 + 5 = 10 hours
Carpenter spends 15 + 15 = 30 hours

Thus, the trade benefits the electrician but does not benefit the carpenter

*D) If the carpenter does 3/5 of the electrician's paneling job, he now spends 15 + (3/5)*15 = 24 hours. The electrician then does 2 full rewiring jobs plus 2/5 of his paneling job and he spends 5 +5+ (2/5)*10= 14 hours. So, under this scenario they both benefit from the trade.*

4. Chapter 2, Problem Set #1

	2002	*2003*
Tea	*12/16000 civics = 7.5 10E-4*	*15/24000 civics= 6.25 10E-4*
Civic	*16000/12 tea= 1333.33 tea*	*24000/15 tea = 1600 tea*

Thus, the relative price of tea in terms of civics fell. The relative price of civics in terms of tea rose.

5. Multiple Choice

i. If the supply of oil falls and all other relevant factors remain unchanged, then,
a. the demand for oil will fall.
b. the quantity demanded of oil will fall.
c. the demand for oil will rise.
d. the quantity demanded of oil will rise.

ii. According to the law of demand, if other relevant factors remain unchanged, then a rise in the price of a commodity will cause
a. a reduction in the equilibrium quantity.
b. excess supply.
c. suppliers to reduce their production in reaction to the lower demand.
d. a fall in the quantity demanded.

iii. The term *demand* refers to
a. a collection of numbers, listing the quantities demanded at a variety of hypothetical prices.
b. the information on tastes, incomes, and prices needed to determine people's desired purchases of a commodity.

c. the amount of a commodity that is being purchased under current market conditions.
d. the quantity purchased at each and every possible level of income.

iv. Suppose that there are only two goods in Spain, chocolate and bottled water. The absolute price of a 100-gram bar of chocolate is 200 pesetas, and the absolute price of a liter of bottled water is 100 pesetas. What is the relative price of bottled water in terms of chocolate?
a. 100 grams per liter.
b. 200 grams per liter.
c. 50 grams per liter.
d. 400 grams per liter.

v. Suppose that because of inflation, the absolute price of a gallon of gasoline increases by 20% and the absolute price of a gallon of milk increases by 10%. In this situation, the price of gasoline relative to the price of milk
a. falls.
b. rises.
c. remains the same.
d. changes unpredictably.

vi. Comparing a market basket A to other market baskets, we can say that for a typical consumer, A is preferred to baskets to the
a. southwest but less preferred to baskets to the northeast.
b. northeast but less preferred to baskets to the southwest.
c. northwest but less preferred to baskets to the southeast.
d. southeast but less preferred to baskets to the northwest .

vii. An indifference curve shows the baskets of goods which
a. have the same marginal values.
b. the consumer can purchase, given his income and the prices he faces.
c. are the most preferred of the baskets within his budget.
d. are all equally desirable, providing the consumer with some fixed level of satisfaction.

viii. Under standard assumptions, which of the following is *not* a property of indifference curves?
a. They are downward sloping and convex.
b. They fill the plane and never cross.
c. Their slope is equal, in magnitude, to the relative price of the goods.
d. Baskets on indifference curves further away from the origin provide more satisfaction than those which are closer to the origin.

ix. Suppose that an indifference curve for Jack is drawn measuring quantities of coffee along the horizontal axis and quantities of root beer along the vertical axis. If the marginal value of an additional cup of coffee is 3 root beers for Jack, the slope of his indifference curve in this range is
a. 1/3.
b. 3.
c. 6
d. dependent upon the prices of the two goods

x. A budget line is constructed to show
a. how consumers who budget their expenditures achieve more satisfaction than those who do not.
b. the set of all baskets that the consumer can afford, given prices and his or her income.
c. the set of all baskets that the consumer would be willing to purchase given various prices for the goods in the basket.
d. the set of all baskets that the consumer considers equally desirable.