Econ 1101-005: Principles of Microeconomics
Midterm practice problems

The following four questions consider the market for widgets. For each of the following situations, determine what happens to the equilibrium quantity (Q^{widget}) and equilibrium price (P^{widget}) of *widgets*.

1. The price of **smidgets** increases. Assume smidgets and widgets are substitutes.
   a) $Q^{widget} \uparrow$ and $P^{widget} \uparrow$.
   b) $Q^{widget} \downarrow$ and $P^{widget} \uparrow$.
   c) $Q^{widget} \uparrow$ and $P^{widget} \downarrow$.
   d) $Q^{widget} \downarrow$ and $P^{widget} \downarrow$.

2. Income increases. Assume the income elasticity for widgets is greater than one.
   a) $Q^{widget} \uparrow$ and $P^{widget} \uparrow$.
   b) $Q^{widget} \downarrow$ and $P^{widget} \uparrow$.
   c) $Q^{widget} \uparrow$ and $P^{widget} \downarrow$.
   d) $Q^{widget} \downarrow$ and $P^{widget} \downarrow$.

3. There is technological change that increases labor productivity in the widget industry.
   a) $Q^{widget} \uparrow$ and $P^{widget} \uparrow$.
   b) $Q^{widget} \downarrow$ and $P^{widget} \uparrow$.
   c) $Q^{widget} \uparrow$ and $P^{widget} \downarrow$.
   d) $Q^{widget} \downarrow$ and $P^{widget} \downarrow$.

4. Two things happen: (i) income increases (when the income elasticity is greater than one) and (ii) labor productivity increases..
   a) $Q^{widget} \uparrow$ and we can't tell what happens to P^{widget}.
   b) $Q^{widget} \downarrow$ and we can't tell what happens to P^{widget}.
   c) $P^{widget} \uparrow$ and we can't tell what happens to Q^{widget}.
   d) $P^{widget} \downarrow$ and we can't tell what happens to Q^{widget}.

5. Consider the widget industry. Suppose income increases, and as a consequence, Q^{widget} **remains unchanged while** P^{Widget} **increases.**. Which of the following is a possible explanation for why this happened?
   a) Widgets are inferior and supply is perfectly elastic.
   b) Widgets are inferior and supply is perfectly inelastic.
   c) Widgets are inferior and demand is perfectly elastic.
   d) Widgets are normal and supply is perfectly elastic.
   e) Widgets are normal and supply is perfectly inelastic.

6. In an industry, (1) **demand** is **perfectly inelastic** and (2) **supply** is **perfectly elastic**. If a tax is imposed in this industry, _____ bear the entire burden of the tax and equilibrium quantity _____. (Pick an answer to fill in the blanks.)

a) Buyers, decreases.

b) Buyers, is unchanged.

c) Sellers, decreases.

d) Sellers, is unchanged.

Reservation Prices and Costs in Econland for a Widget

Name of D Person	Reservation price for one widget (dollars)	Cost to make one widget (dollars)	Name of S Person
D1	9	1	S1
D2	8	2	S2
D3	7	3	S3
D4	6	4	S4
D5	5	5	S5
D6	4	6	S6
D7	3	7	S7
D8	2	8	S8
D9	1	9	S9
D10	0	10	S10

7. The table above provides reservation prices and costs for the inhabitants of Econland. Suppose we have an allocation where S1 and S2 each produce a widget and D1 and D2 each consume a widget. This is not Pareto efficient because

a) S6 can sell a widget to D6 for $5 and both are better off.

b) D2 can sell his widget to D4 for $3 and both are better off.

c) S3 can produce a widget and give it to D3 in exchange for $6 and both would be better off.

d) S2 can pay $1.50 to S3 to outsource production of the widget to S3, and both are better off.

e) None of the above.

8. Suppose there is a price **floor** of $7. What inefficiency might result?

a) D5 might end up consuming a widget while D3 does not..

b) D2 might end up consuming a widget while D1 does not.

c) S9 might end up producing a widget while S1 does not

d) S6 might end up producing a widget while S2 does not

e) None of the above
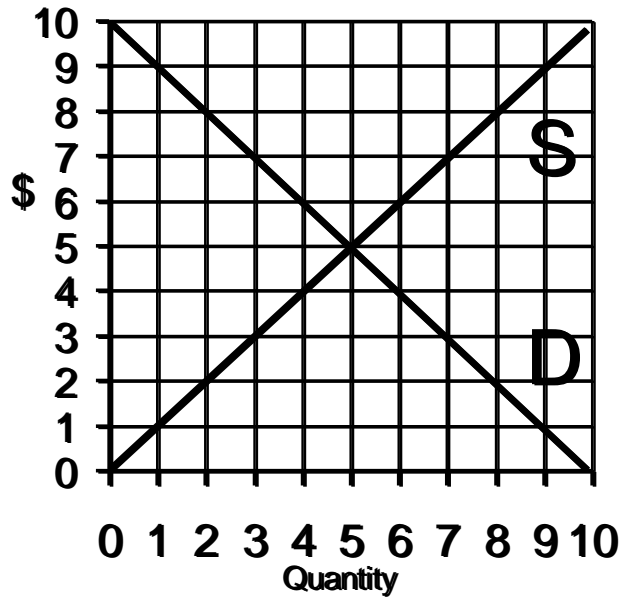
The above diagram gives information about demand and supply for widgets in Econland. The next few questions ask you to determine the impact of a **tax** of $2 in Econland. To answer the questions, it is recommended that you first fill out the table below and then use the table to answer the questions.

Variable	Free Market	$2 **Tax**	Change
Q	5		
P^D	5		
P^S	5		
CS	12.5		
PS	12.5		
Gov't Surplus	0		
TS	25		

9. The equilibrium consumer price P^D under the $2 **tax** is
    a) 5
    b) 6
    c) 7
    d) 8
    e) 9

10. Producer surplus under the $2 **tax** is
    a) 4.5
    b) 6
    c) 8
    d) 10
    e) 12.5

11. The tax revenue collected by the $2 **tax** is
    a) 0
    b) 4
    c) 6
    d) 8
    e) 10

12. The **change** in total surplus from the $2 **tax** is
    a) 0
    b) –.5
    c) –1
    d) –2
    e) –2.5

13. Assume the same demand and supply curve in the diagram above, but consider a different policy. The government implements a supply management policy in the industry, limiting industry quantity to some amount Q, through use of a tradable quota system. The total market value of the quota equals the quantity of quota times the price of quota. Which of the alternative quota quantities below maximizes the total market value of quota?
    a) Q = 1
    b) Q = 3
    c) Q = 4
    d) Q = 5
    e) Q = 6

14. The _____ states that the _____ is _____ if the market structure is perfect competition and there are no externalities.
    a) Pareto Efficiency Doctrine, subsidized market, perfectly elastic
    b) Pareto Efficiency Doctrine, unregulated market, perfectly inelastic
    c) First Welfare Theorem, unregulated market, Pareto efficient
    d) First Welfare Theorem, subsidized market, Pareto efficient
    e) Adam Smith Theorem, unregulated market, equitable

P
10
9 •A   B   C
8
7
6
5 •E •F   G   •H
4
3
2 •K •L   M   •N
1
0

0 1 2 3 4 5 6 7 8 9 10
Quantity

Demand   Supply
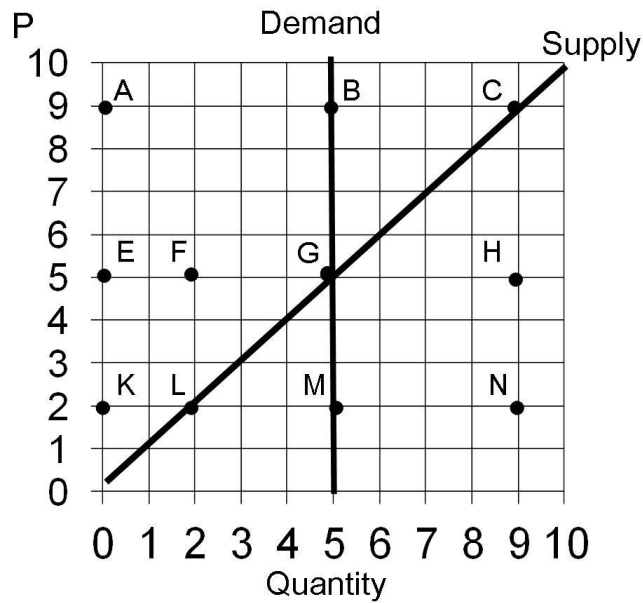
15. If price equals $9 in the above market there is excess supply. Consider a policy where the government buys up all the excess supply, to prevent the price from falling below $9. What will be the total expenditures of the government on the program?

a) $9
b) $18
c) $36
d) $45
e) $40

16. Compared to the free market, the **change** in producer surplus from this policy equals

a) +ABGE
b) +ACHE.
c) +ACHE.
d) +AC0
e) +ACGE

17. Now use the same graph above to consider a different policy. Suppose a subsidy of $3 is introduced. Relative to the free market, the **change** in producer surplus equals

a) 0
b) +ACGE.
c) +ACHE
d) +EGMK
e) +EHNK.

18. The **change** in consumer surplus from the $3 subsidy equals

a) 0
b) +ACGE.
c) +EGMK
d) +ABGE
e) +EGNK.

19. Which of the following are rivalrous in consumption?
   (i) A banana
   (ii) Premium TV channels (e.g. HBO)
   (iii) FM radio
   (iv) Timber from an unregulated forest

   a) (i) and (ii)
   b) (i) and (iii)
   c) (i) and (iv)
   d) (ii) and (iv)
   e) (ii) and (iii)

20. Suppose that when the price of a good increases from $5 to $6, the quantity demanded decreases from 2 units to 1 units. From this information, we can say that
   a) demand is perfectly inelastic
   b) demand is perfectly elastic
   c) demand is elastic
   d) demand is inelastic
   e) none of the above

The questions on this page and the next page refer to the graph below. Wolverine consumes pizza and soda and the graph illustrates his indifference curves.
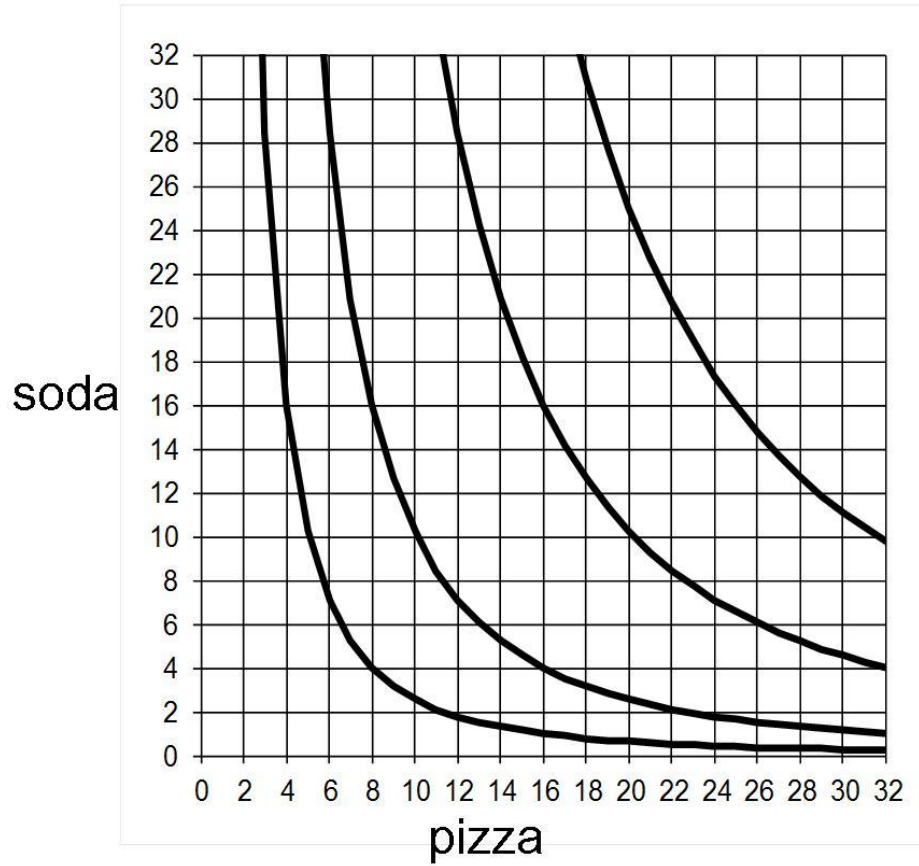

21. From Wolverine's indifference curves, we can determine that Wolverine is indifferent between having (10 pizzas, 10 sodas) and
    a) (8 pizzas, 12 sodas)
    b) (8 pizzas, 22 sodas)
    c) (6 pizzas, 6 sodas)
    d) (32 pizzas, 4 sodas)
    e) (24 pizzas, 2 sodas)

22. Suppose Wolverine has an income of $60, that P^{Pizza}=$4, and that P^{Soda}=$2. Draw Wolverine's budget constraint in the above figure. From this we can see that the opportunity cost of one more slice of pizza equals
    a) ½ soda
    b) 1 soda
   c) 2 sodas
    d) 3 sodas
    e) 4 sodas

23. At this income and prices of soda and pizza, the optimal consumption bundle for Wolverine is
   a) (7.5 pizza, 15 sodas)
   b) (4 pizza, 22 sodas)
   c) (15 pizza, 0 sodas)
   d) (10 pizza, 10 sodas)
   e) (14 pizza, 2 sodas)

24. Suppose the price of pizza falls from $4 to $2. The **change** in the demand for pizza equals
   a) 0
   b) 4
   c) 8
   d) 10
   e) 12

Robinson works 5 hours a day. He can make 8 apples per hour or 2 oranges per hour.
Friday works 10 hours a day. He can make 1 apple per hour or 4 oranges per hour. The
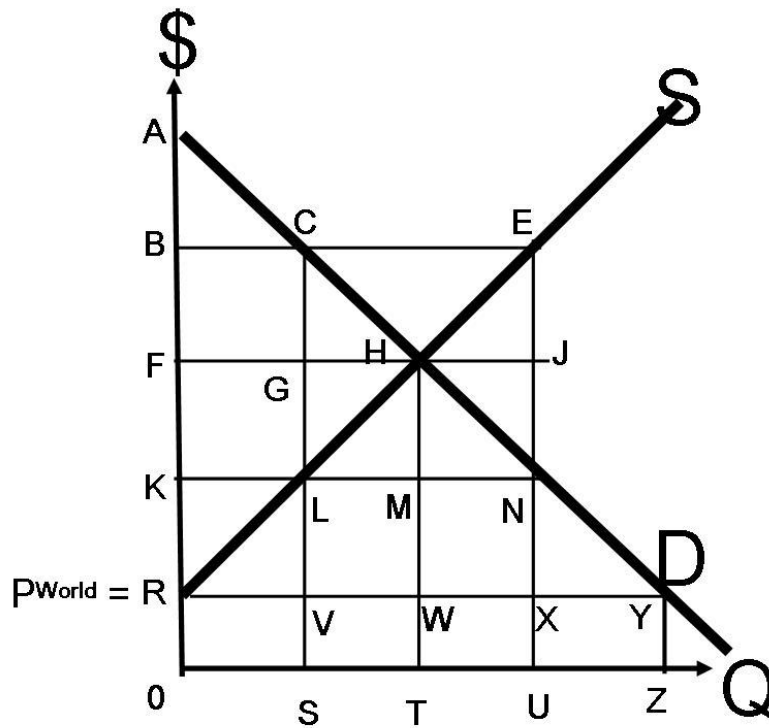figures below show the indifference curves for Robinson and Friday.
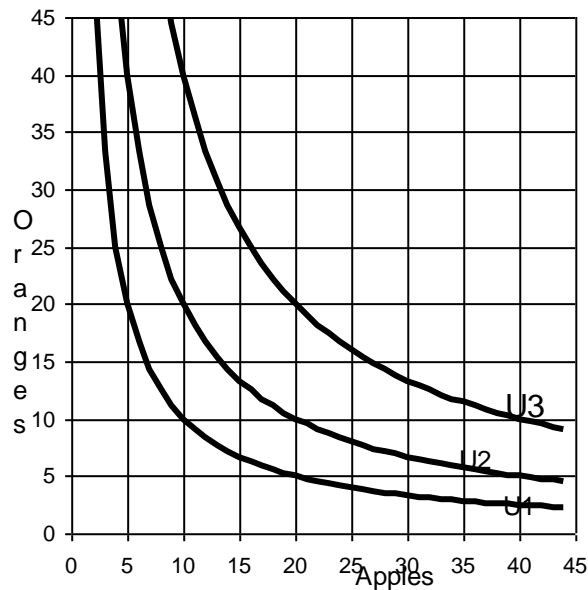
Robinson
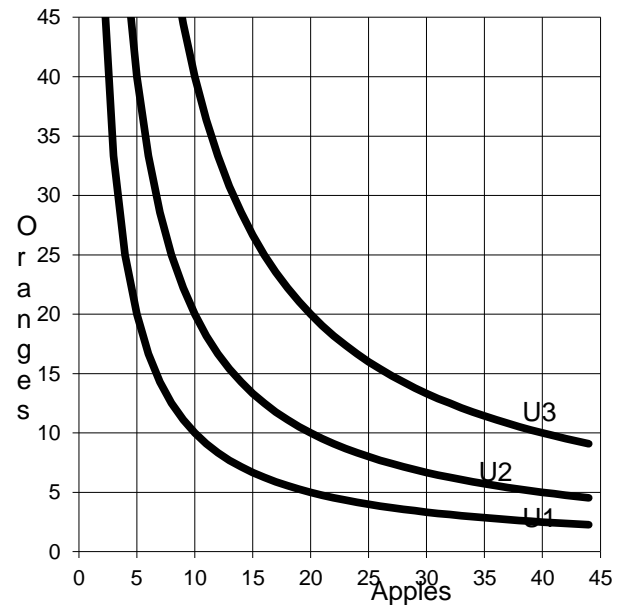
Friday

Illustrate Robinson's and Friday's production possibility frontiers (ppf) in the graphs above
and then answer the following questions.

25. _____ has an **absolute** advantage in making apples and _____ has a comparative advantage in
    making apples. (Fill in the blanks)
    a) Friday, Friday
    b) Robinson, Robinson
    c) Friday, Robinson
    d) Robinson, Friday

26. Suppose trade is **impossible**, so each is in autarky. For each, production equals consumption. At the
    utility maximizing choice, Robinson produces and consumes
    a) (40 apples, 0 oranges)
    b) (0 apples, 10 oranges)
    c) (20 apples, 20 oranges)
    d) (20 apples, 5 oranges)
    e) (5 apples, 20 oranges)

27. Suppose trade is **possible** and that the price of **one apple** in terms of oranges equals **one orange**.   In
    this case, Robinson **produces** _____ apples and **consumes** _____ apples.
    a) 5, 20
    b) 10, 40
    c) 40, 20
    d) 20, 20
    e) 30, 15

$
A
S
B   C   E
F   H   J
    G
K
    L   M   N
PWorld = R
    V   W   X   Y
                    D
0   Q
    S   T   U   Z

The above graph illustrates the supply and demand for widgets in Econland. Widgets can be obtained in world markets at a price P^{World} = R as illustrated. Suppose initially Econland is in aurtarky. Then it opens to free trade with the rest of the world.

28. Relative to autarky, free trade results in a **change** in Econland producer surplus of _____ and a change in Econland total surplus of _____.

   a) –GHL, –CHL

   b) –FHLK, +RLNY

   c) 0, 0

   d) –FHR, +RHY

   e) –KLR, +BENK

29. Suppose the instead of free trade, the government of Econland sets a tariff on widgets equal to the length FR. Total tariff revenue collected then equals

   a) FRXJ

   b) FRWH

   c) GVXJ

   d) LNXV

   e) 0

30. Suppose the instead of free trade, the government of Econland sets a quota on widgets imports equal to the length YR. Assume import quota are tradable. The total market value of all of the quota together equals

   a) LNXV

   b) FLNY

   c) GJUS

   d) RYZ0

   e) 0
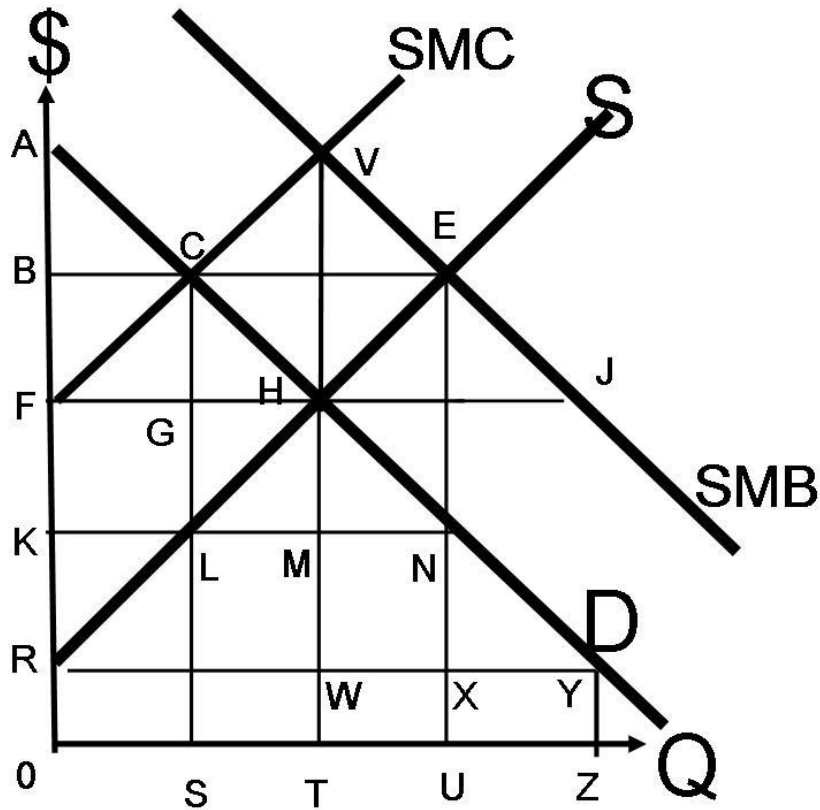
31. Suppose there is an industry that has **two** externalities. There is a **negative externality** on the production side, so the social marginal cost (SMC in the figure) exceeds private marginal cost (S in the figure). There is a **positive externality** on the consumption side so the social marginal benefit (SMB in the figure) exceeds private marginal benefit (D in the figure). The market equilibrium quantity equals _____ and the socially efficient quantity equals _____ (fill in the blanks)

   a) T, U
   b) T, S
   c) S, S
   d) T, T
   e) U, U

32. The government decides to put a subsidy in this market. Which of the following is true?
   a) Doing so will increase the total surplus of Econland
   b) Doing so will bring Econland to the socially efficient quantity
   c) Doing so will increase quantity above the socially efficient quantity
   d) Nothing happens because there's a negative externality in the market
   e) The deadweight loss resulting from the subsidy is erased by the negative externality

Refer to the table below to answer the next 3 questions. Assume that factors that may change demand but are not listed in the table below do not change between the four months.

Month	Income	Price of Coke	Quantity Demanded of Coke	Price of Pepsi	Quantity Demanded of Pepsi
January	200	2	100	2	70
February	100	2	70	2	50
March	100	4	50	2	70
April	100	4	60	4	50

33. From the table above, we can conclude:

   a. The price elasticity of demand for Coke is inelastic
   b. The price elasticity of demand for Coke is unit elastic
   c. The price elasticity of demand for Coke is elastic
   d. We do not have enough information to calculate price elasticity of demand of Coke

34. From the table above, we can conclude:

   a. The price elasticity of demand for Pepsi is inelastic
   b. The price elasticity of demand for Pepsi is unit elastic
   c. The price elasticity of demand for Pepsi is elastic
   d. We do not have enough information to calculate price elasticity of demand for Pepsi

35. From the table, we can conclude that Coke is a _____ good and Pepsi is a _____ good

   a. Normal good, inferior good
   b. Inferior good, normal good
   c. Normal good, normal good
   d. Inferior good, inferior good

36. Consider two normal goods, good A and good B. Suppose good A is a necessity good and good B is a luxury good. Which of the following statements is true?

   a. As your income increases, the share of your income that you spend on good A increases while the share of your income you spend on good B decreases
   b. As your income increases, the share of your income that you spend on good A decreases while the share of your income you spend on good B increases
   c. As your income increases, the share of your income that you spend on good A and good B both increase
   d. As your income increases, the share of your income that you spend on good A and good B both decrease

37. If toilet paper is a necessity good, it means that as your income increases,
    a) your total spending on toilet paper goes down
    b) you buy less toilet paper
    c) you don't buy any toilet paper
    d) the share of income you spend on toilet paper decreases
    e) the share of income you spend on toilet paper increases

38. When calculating elasticity, we use percentage changes instead of actual changes because
    a) Using percentage changes will get rid of the negative sign
    b) Using percentage changes will get rid of the units problem
    c) Using actual changes will always overestimate elasticity
    d) Using actual changes will always underestimate elasticity
    e) None of the above

Gas Taxes and Gas Prices

$y = 1.0449x + 2.3478$
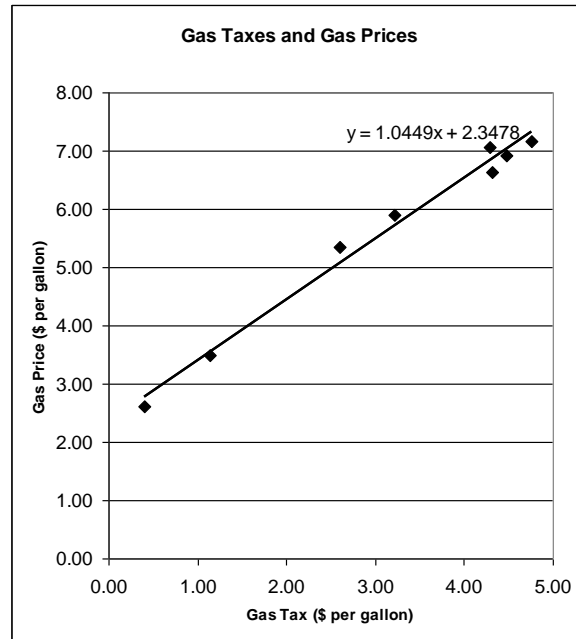
39. The above figure plots average retail gasoline prices and gas tax rates in dollars per gallon for eight countries.
    a) It is evidence that consumers, not producers bear the primary burden of gas taxes.
    b) It is consistent with what economic theory predicts will happen to the price consumers pay when a country imposes a tax and the supply of gasoline to the country is perfectly elastic.
    c) (a) and (b) are both true.
    d) (a) and (b) are both false.

40. In one study, the elasticity of demand is estimated to be .1, while in another study it is estimated to be 1.0. This makes sense of the first study is estimating the _____ elasticity, while the second studi is estimating the _____ elasticity (Fill in the blanks).
    a) Short-run, long-run
    b) Long-run, short-run
    c) Long-run, medium-run
    d) Medium-run, short-run

41. Which of the following is an example of the economic term "Tragedy of the Commons"?
    a) A shared kitchen that is filled with dirty dishes and used pots and pans
    b) A baseball team (like the Twins) that doesn't win many games
    c) A privately owned fish farm where fish is being overly farmed by the owner
    d) The attendance for the Minnesota Gophers football games are much lower than full capacity

42. Why might a cap-and-trade program to reduce carbon emissions be better than a program to reduce carbon emissions using taxation – based on what we learned in class?
    a) A cap-and-trade program is more efficient, in terms of welfare, for an economy than taxation is
    b) A tax is not politically popular
    c) Deadweight loss is associated with taxes, but not with cap-and-trade
    d) Taxes are not as easy to regulate as a cap-and-trade program

43. What is the characteristics of a private good?
    a) That it is non-excludable and rivalrous
    b) That it is non-excludable and non-rivalrous
    c) That it is excludable and rivalrous
    d) That it is excludable and non-rivalrous

44. **Mark and James both work 2 hours a day.** Mark can make ten drawings per hour or five puzzles per hour. James can make four drawings per hour or two puzzles per hour. _____ has the absolute advantage in making drawings and _____ has the absolute advantage in making puzzles.
    a) Mark, Mark
    b) Mark, James
    c) James, Mark
    d) James ,James
    e) None of the above

45. We see that _____ has the comparative advantage in making drawings and _____ has the comparative advantage in making puzzles.
    a) Mark, Mark
    b) Mark, James
    c) James, Mark
    d) James ,James
    e) None of the above

46. Suppose now James discovers a technology that allows him to make puzzles at a rate of 10 puzzles per hour. The production rates of drawings for James and drawings and puzzles for Mark remain the same as in question 25. With this new information, _____ has the comparative advantage in making drawings and _____ has the comparative advantage in making puzzles.
    a) Mark, Mark
    b) Mark, James
    c) James, Mark
    d) James ,James
    e) None of the above

47. Using the new rates (Mark making 10 drawings per hour or 5 puzzles per hour, and James making 4 drawings per hour or 10 puzzles per hour), suppose the two decide to specialize on the good that he has a comparative advantage in. The lowest price of drawings such that trade will happen is _____ and the highest price of drawings such that trade will happen is _____.

   a) $\frac{1}{2}$ puzzles, $\frac{1}{2}$ puzzles

   b) $\frac{1}{2}$ puzzles, $\frac{5}{2}$ puzzles

   c) $\frac{5}{2}$ puzzles, $\frac{1}{2}$ puzzles

   d) $\frac{5}{2}$ puzzles, $\frac{5}{2}$ puzzles

48. Using the new rates (Mark making 10 drawings per hour or 5 puzzles per hour, and James making 4 drawings per hour or 10 puzzles per hour), and with both Mark and James working two hours per day, if 'drawings' is the good on the X-axis and 'puzzles' is the good on the Y axis, then the slope of the PPF for Mark is ____, which is the _____ of obtaining one more drawing in terms of puzzles.

   a) 2, opportunity cost
   b) 2, marginal rate of substitution
   c) ½, marginal rate of substitution
   d) ½, opportunity cost
   e) None of the above

49. What is the intuition behind the right-angled indifference curves of perfect complements (fixed proportions) indifference curves?

   a) Because the two goods are consumed in a set proportion, the demand curve is perfectly inelastic for one good and perfectly elastic for the other, which creates right-angled indifference curves
   b) If one good is not consumed and the other one is consumed, then the person will be infinitely happy, which creates right-angled indifference curves
   c) Having more of one good but not of the other will mean nothing, as far as utility goes, for the person, which creates right-angled indifference curves
   d) The opportunity cost is increasing with the number of each good consumed, which creates right-angled indifference curves
   e) The opportunity cost is decreasing with the number of each good consumed, which creates right-angled indifference curves

50. What does it mean when countries exhibit **increasing returns** in production of a good?

   a) The opportunity cost of producing a good is increasing, the more that it is produced
   b) The opportunity cost of producing a good is decreasing, the more that it is produced
   c) The fixed cost of producing a good is increasing, the more that it is produced
   d) The fixed cost of producing a good is decreasing, the more that it is produced

Some examples of open questions:

1) Your friend has just learned that the United States are planning to remove all tariffs on imported steel. He is astonished by this news. According to him, "tariffs help domestic producers, bring in revenue for the government and don't hurt anyone". Do you agree or disagree with this statements? Explain? If you make any claims of your own, make sure to present clear arguments behind them (with graphs).

2) You have been running a little breakfast restaurant for many years. It's high time that you think about investing in some new equipment and furniture for the guests. However, you only have a limited amount of money to invest right away, therefore you need to postpone some of the purchasing decisions until next year. Your restaurant needs, above all, new tables and new stoves. The cost is more or less the same, so you start to think about which investment should be made immediately. After some research, you find out the following:

   a. Best Buy is planning to open their first store in your town within the next year
   b. Sales tax on raw wood is about to be increased
   c. A new apartment complex has just opened in the neighborhood. People are moving into their new apartments and will need to furnish them as well.

   Which investment should be given priority in your opinion? State your argument in a clear way and use relevant graphs to explain your reasoning.

3) Present an economic analysis of the smoking ban in restaurants and bars. Which market failure (i.e. inefficiency of unregulated market) is this ban trying to address? Is the outcome of the ban likely to improve efficiency? Explain your reasoning clearly and use the economic terms discussed in class.

4) Give an example of your favorite public good. How is that good paid for? Is the amount of that public good efficient (or close to efficient)? If yes, explain clearly why. If not, what mechanism could be responsible for having an inefficient amount of it?