

First Exam

Write all answers in your blue book and show all work there. Return your exam in your blue book.

16 pts.

1) Suppose that demand is

$$Q_D = 24 - 3P \quad \text{and supply is}$$

$$Q_S = -10 + 4P.$$

- Draw a well-labeled diagram of these equations and solve for the equilibrium price and quantity.
- Now suppose that there is a \$2 sales tax. Show the effect in the diagram and solve for the equilibrium price and quantity. Show this in your diagram.
- Do either the buyer or seller like this tax? Why?

16 pts.

2) Barack and Nancy do two jobs, speech writing and fund raising. The times they take to get these jobs done are given in the table below.

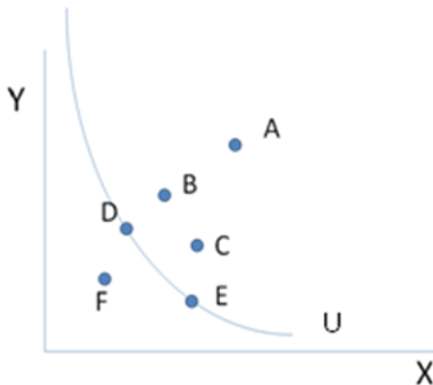
	Hours per job	
	Writing	Fund Raising
Barack	30	20
Nancy	3	4

- True or false, explain: Nancy is so much faster than Barack that she cannot trade and benefit.
- If they can trade, suggest terms on which they both can benefit.
- Use your part b terms to show who loses (if either) or who wins (if either).

16 pts.

3) a) Can an indifference diagram be used to model two “bads?” If so, draw a well-labeled diagram for such a model.

b)



- What point has the lowest utility?
- What points have the same utility?
- Which points have the least similar utility?

20 pts

4) $P_{X1} = 10$, $P_{X2} = 11$, $P_{Y1} = 5$, $P_{Y2} = 6$, $I_1 = 200$, $I_2 = 230$

- a) Draw the budget lines in well-labeled diagrams (give values for the intercepts).
- b) If $X_1 = 7$ and $Y_1 = 26$, is that a plausible utility maximizing point? Why?
- c) Given the information that you have, what is the price index for year 2.
- d) Given the information that you have, what is the real income for year 2.
- e) Draw an indifference curve in your diagram that shows utility changing the opposite way as real income.

16 pts.

5) a) If $U = 20 - 3X + X^2$, find dU/dX and find X where U is either at a max or min. Which is it? A max or min? Why?

b) If $U = 20 + 3X + X^2 - X^3/6$, find the inflection point. Draw a well-labeled diagram of the function..

c) If $U = XY^4$, find dU/dY presuming that X is a function of Y .

16 pts.

6) If we have a gift from the government of 10000 dollars and income tax that raises 10000 dollars, does this effect on the amount of work we do or the level of utility that we have (compared to situation where there is no gift and no tax)?

I have neither given nor received unfair aid on this test.
