First Exam

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

16 pts.

1) Demand in market X is X = 100 -3P and supply is X = -40 + 2P.

a) Solve for the equilibrium price and quantity.

b) Solve for the equilibrium price and quantity when there is a $5 sales tax on X.

c) Draw a well-labeled diagram that shows the equations and values in parts a and b.

d) How much is the full price to the consumer when the tax is levied? Show it in the diagram.

16 pts.

2) Suppose that we have the following table that shows the time required for Mr. X and Ms. Y to get two tasks done.

	Hours per job	
	Job 1	Job 2
Mr. X	7	9
Ms. Y	5	8

a) True or false, explain: Ms. Y is faster at both jobs, which they do equally well. Therefore, there is no opportunity for mutually beneficial trade.

b) Which one has the lower opportunity cost for job 1? Show it.

c) I f they trade, which one should specialize in job 1? Why?

d) Will they trade at a rate of one job 1 for one job 2? Why or why not?

16 pts.

3) In year 1 you earn $40 and there are 2 goods, X and Y, where $P_X = 1$ and $P_Y = 3$. In year 2 you earn $70 and $P_X = 2$ and $P_Y = 4$.

a) If in year 1 you buy 20 of X, how much do you buy of Y? Draw well-labeled diagram of this.

b) Can you afford year 1 goods in year 2? Is real income up or down? How much? Show this in your diagram and show a reasonable new optimum.

c) Is utility up or down from year 1 in your part b diagram. Does this coincide with or contradict the movement of real income.
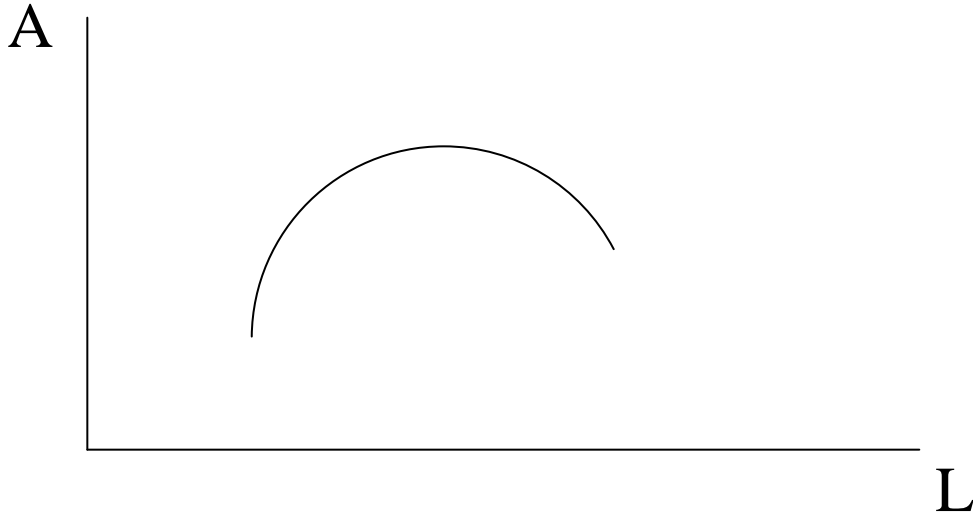
20 pts

4) If $P = -.1X^3 + 2X^2 + 10X - 5$,

a) Find dP/dX.

b) Does P have a min or a max? If so, find it.

c) Does P have an inflection point? If so, find it

d) Sketch the function using derivatives to find key points (for $X >= 0$).

16 pts.

5) a)   Suppose O = AL where the diagram below shows the relationship between A and L.

A

L

a) Find dO/dL.

b) If dA/dL is negative, is dO/dL greater than or less than A? Why?

c) Sketch the diagram over again and add M to it, where M is dO/dL.

16 pts.

6) Which of the following will give more utility when shifting consumption from X to Y? Why?

a) MV (or MRS_C) is 3 and P_X/P_Y =2

b) $MU_X = 4$, $MU_Y = 3$, $P_X = 2$ and $P_Y = 1$

c)   In the diagram below, positions A, B or C

Y

C B_0

A

U_0
B

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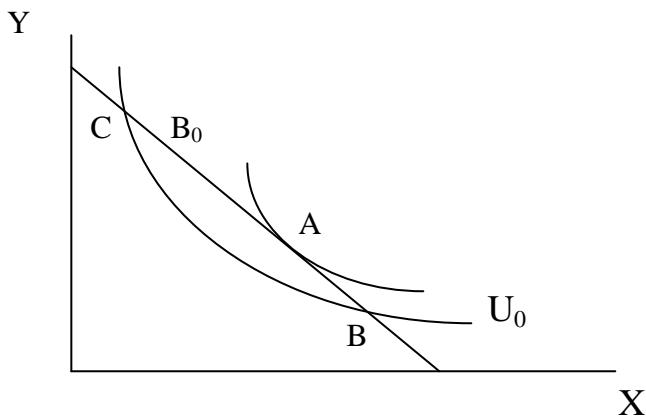
I have neither given nor received unfair aid on this test.