First Exam

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

14 pts.
a) Draw a well-labeled diagram for good X when supply is perfectly inelastic and demand slopes down with a vertical intercept of 9. Draw it so that the equilibrium price is 4.5.
b) Now suppose that a new product is invented that competes with good X and that people now aren't willing to pay as much for good X. Draw a new diagram that shows people willing to pay two dollars less for X at all levels of X. Find the new equilibrium price.

7 pts.
2) If $Q_D = 1000 – 2P$ when there is no tax, what is the equation when there is a $5 sales tax?

15 pts.
3) Jack's abilities in the production of goods A and B are such that it costs him 2 units of B to produce a unit of A. Jill's abilities in the production of goods A and B are such that it costs her 3 units of B to produce a unit of A.
a) Can we conclude that Jack is more productive than Jill? Explain.
b) If Jack and Jill trade, what will Jill specialize in? Why?
c) Will both Jack and Jill gain from trade if the price of A is 1 unit of B? Explain.

22 pts.
4) Bill has $100 of income and X costs $2 per unit and Y costs $4 per unit.
a) Draw a well-labeled diagram of his budget line.
In his current position he is willing to give up 3 units of X for 1 unit of Y.
b) Draw an indifference curve in your diagram and identify a point on it that approximates Bill's current position. Is Bill maximizing utility at this point? Explain.
c) If Bill's current MU_X is 5, what must the MU_Y be?

d) What would happen to Bill's utility if he bought one less unit of X and spent the money on Y? Explain.

14 pts.
5) Suppose that prices of X and Y and income change from year 1 to year 2 so that Al can just afford the year 1 mix of X and Y.
a) Draw a well-labeled diagram of these budget lines and the year 1 optimum.
b) Is it possible that Al will be equally happy in year 2. Explain.

14 pts.
6) Suppose that Utility $= 8 + X – (X^2)/4$.
a) Find the value of X where utility is maximized and confirm that this is a maximum. Draw a well-labeled diagram of the utility function.
b) If this is really the utility function for X, is X a good or bad or some of each? Explain.

14 pts.
7) Suppose that Utility $= 10X^{1/2}$

a) Does this function have a maximum? Explain.
b) Does it exhibit diminishing (marginal) returns? Explain.

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