Midterm I.

Econ 101
Professor Guse

Monday October 15, 2007.

Instructions. You have 55 minutes to complete the exam. There are 55 points available. Please write your responses on the exam itself in the space provided. If you require additional space, write on the back of the page. You may refer only to your own handwritten, two-sided, "cheat sheet". Calculators and all other references materials are *not* allowed. If a question asks for a numeric quantity you may leave your answer in expression form for full credit. (e.g. "$\frac{40-30}{5}$" would be perfectly acceptable in place of "2".) Be sure to label any diagrams you draw, to show your work and to explain your reasoning. Please turn in your cheat sheet with your exam. Thank you and good luck!

Name:

Pledge:

1. (5 Points) Define Average Product of Labor. AP(L)

2. (10 Points) For value of L where AP(L) is greater than the marginal product of labor, MP(L)...
   MP(L) [must be[1]] / [is typically[2]] [increasing]/[decreasing] while
   AP(L) [must be]/[is typically] [increasing]/[decreasing].
   For each slash, "/", circle one option on either side of it - or simply write a sentence using those options. Explain briefly, using a diagram, if helpful.

[1] "must be" = regardless of the underlying production function
[2] "typically" = in the case of the classical production function studied in class.

3. (15 Points) Marc has $300 to spend on mice and test-tubes. The price of mice is $1 each. Test-tube are $2 each. Marc decides to buy 100 mice.

   (a) (5 Points) Draw a budget line showing the choices available to Marc and mark his choice. Be sure to indicate how many test-tubes he bought.

   (b) (10 Points) Suppose instead of $300 Marc was given 50 mice and 125 test-tubes. What can you say about Marc's willingness to trade mice for additional test-tubes? (i.e. How many test-tubes would he ask for in exchange for one of his mice?) Hint: an exact answer may not be possible.

4. (15 Points) Suppose that Zach's Clothes Pins, Inc. has, in the short run, a fixed level of capital investment in pin-making equipment worth \$80. Meanwhile labor (L) is a variable input for Zach's. For their current capital investment, the maximum of Zach's AP(L) curve is 50 pins / hour. Assume the wage is \$10/hour and the price of additional capital is \$1 / unit.

   (a) (10 Points) How many clothes pins will Zach produce if the price of clothes pins is \$0.15 per pin. Explain.

   (b) (5 Points) What is Zach's profit when the price is \$0.15?

5. (15 Points) The diagram below shows Al and Betty's combined daily PPF for crepes (C) and dijon mustard (D). Al's individual PPF for these two good is also shown in the same picture. Assume that both individual and combined PPFs represents the production possibilities when the agents work alone.[3]

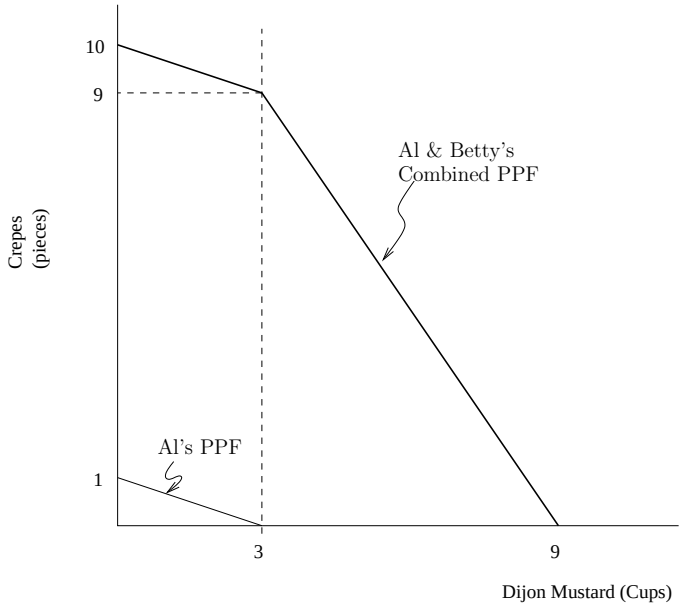

Figure 2.

(a) (6 Points) Draw Betty's individual PPF for crepes and dijon mustard (in the same diagram, if possible).

(b) (1 Point) Al has a comparative advantage in the production of

i. Crepes
ii. Dijon Mustard
iii. Both
iv. Neither

(c) (1 Point) Betty has a comparative advantage in the production of

i. Crepes
ii. Dijon Mustard
iii. Both
iv. Neither

(d) (7 Points) Explain your answers.

[3]In other words, the combined PPF does not represent any possible complementarities from having Al and Betty work together in a production process.