

Name _____

Economics 111: Intermediate Microeconomics
Spring 2005
Practice Midterm 1

You have 1 hour and 20 minutes. Only clarifying questions are allowed. Do not cheat. Do not panic. Enjoy the exam. (The actual exam will be a little shorter than this practice exam).

Questions 1 to 5 are multiple choice. Circle the correct answer. (5 points each correct answer).

1. An inferior good must also be:

- a. a superior good.
- b. a luxury good.
- c. a Giffen good.
- d. an ordinary good.
- e. none of the above.

2. Arturo and Belen consume only two goods, X and Y. They have strictly convex and smooth preferences (no kinks in their indifference curves). At the initial allocation, Arturo's MRS is equal to A and Belen's is equal to B, where $A < B$. (remember $MRS = \frac{MU_X}{MU_Y}$) The competitive equilibrium price ratio is $\frac{p_X}{p_Y} = C$. Then, it must be true that

- a. $C > B$.
- b. $C < A$.
- c. $C = A$.
- d. $C = B$.
- e. $A < C < B$.

Name _____

3. Which of the following pairs of utility functions represent exactly the same preferences?

a. $U = x_1 + x_2, V = x_1 + 2x_2.$

b. $U = (x_1 + x_2)^2, V = 2x_1x_2.$

c. $U = x_1^2 - x_2, V = -x_1 + x_2^2.$

d. $U = x_1x_2, V = \sqrt{x_1x_2}.$

e. $U = \frac{1}{x_1+x_2}, V = 2x_1x_2.$

4. Alberto and Benito consume two goods. They trade only with each other and there is no production. Alberto's utility function is $U_A = 2x_{A1} + x_{A2}$ and Benito's is $U_B = 4x_{B1} + 2x_{B2}$. In their Edgeworth box, the set of Pareto efficient allocations is:

a. the main diagonal.

b. both diagonals.

c. the entire box.

d. the right and left edges of the box.

e. the upper and lower edges of the box.

5. The Armchair Economist thinks economics can be summarized as follows:

a. supply and demand.

b. people respond to incentives and the rest is commentary.

c. the world is too complicated to be understood.

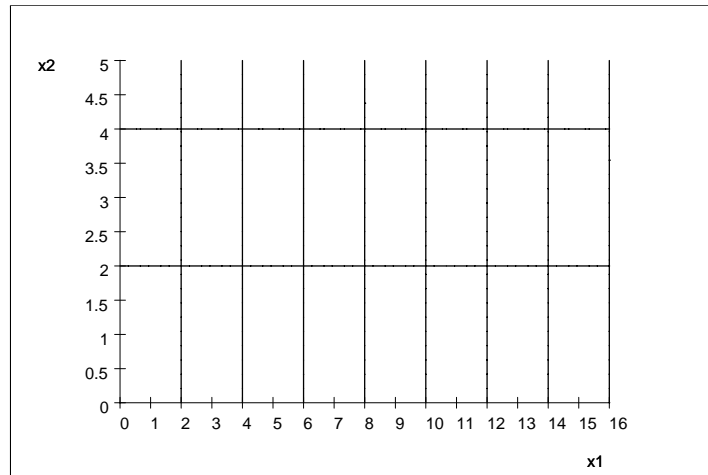
d. markets are good and regulations are bad.

e. none of the above.

Name _____

6. Consider the following utility function: $U = \sqrt{x_1} + x_2$. (25 points)

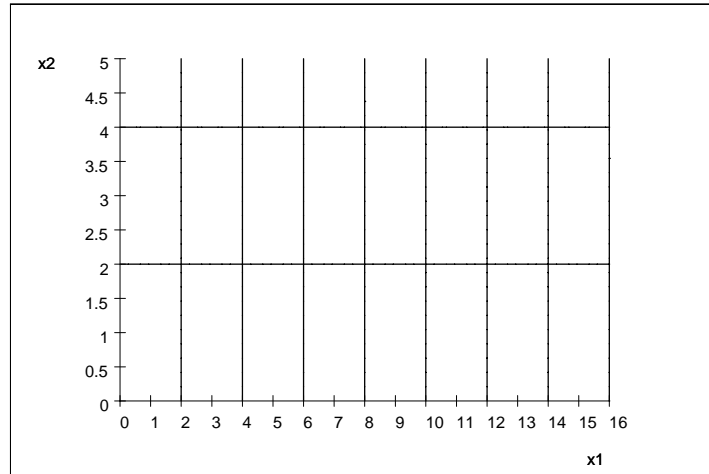
a. In the following figure graph the indifference curves for $U=2$ and 4.



b. Find the formula for the MRS. How does it depend on x_2 ? What does that tell us about the slope of the indifference curves if we keep x_1 constant and change x_2 ?

c. Find the MRS when $x_1 = 4$ and $x_2 = 0$ and when $x_1 = 0$ and $x_2 = 2$.

d. Assume that $p_1 = 1$, $p_2 = 4$ and $m = 4$. Draw his budget line in the following figure. Also draw the indifference curve that goes through $(4, 0)$. (Hint: to do the graph correctly pay attention to point c.)



e. What is his optimal consumption if $p_1 = 1$, $p_2 = 4$ and $m = 4$?

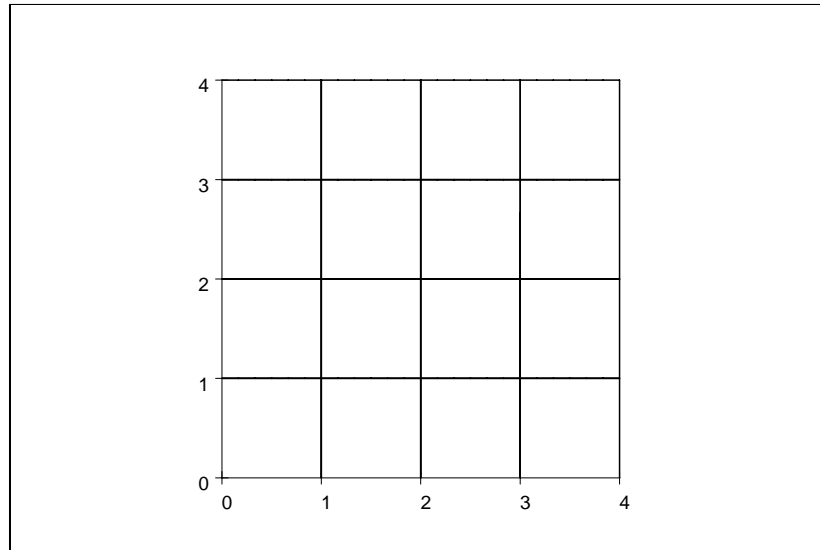
f. What is his optimal consumption if $p_1 = 1$, $p_2 = 5$ and $m = 4$?

g. What is his optimal consumption if $p_1 = 1$, $p_2 = 3$ and $m = 4$?

h. Find the demand function for general p_1 , p_2 and m . (Difficult! Assume first that the solution is interior and then solve. Then, from x_2^* you will be able to obtain conditions such that the solution is indeed interior. Then, solve for the demand if the solution is not interior -this is the easy part.)

7. Consider a world with two agents: A and B. The utility of A is $U_A = x_{A1}x_{A2}^3$ and the utility of B is $U_B = x_{B1}^3x_{B2}$. The initial endowments are $\omega_A = (4, 0)$ and $\omega_B = (0, 4)$. (25 points)

a. Draw the Edgeworth Box labeling all axis and draw the initial endowment and the indifference curves that go through it.



b. Find the Contract Curve. Draw the Contract Curve in the Edgeworth Box of point a.

c. What is the MRS of both players in the contract curve?

d. Find the demand functions of A.

e. Find the demand functions of B.

e. Find the competitive equilibrium (assume that $p_2 = 1$).

f. Is the equilibrium efficient?