

HOMEWORK #1
Due Sep 23 IN CLASS
NO LATE SUBMISSION IS ACCEPTED
Please TYPE and STAPLE your work

QUESTION 1 (5 pts)

Consider the following definition of the efficiency of production (like in class):

- Given fixed amount of inputs, output bundle of a firm is efficient if it is impossible to produce *at least as much of all* outputs and *strictly more* of one of them.
 - a) Give an example of a Production Possibility Frontier with only one efficient output bundle. Explain why this bundle is efficient.
 - b) Pick another bundle on the boundary and explain why this one is not efficient.

QUESTION 2 (7 pts)

There are two people in the economy, Romeo and Juliet. They can produce only two goods called Widgets and Gadgets. Romeo and Juliet have 10 hours of time each. Suppose that any time of the day is equally good for producing either good. Maximum amounts of each good they can produce are shown in the table:

Person\Product	Widgets	Gadgets
Romeo	9 units/hour	3 units /hour
Juliet	6 units/hour	3 units /hour

Data are production in units per person per unit of time.

- a) Graph the Production Possibility Frontier of each person.
- b) Does the Law of Increasing Opportunity Cost apply to each PPF?
- c) What is the Opportunity Cost of each person for each product?
- d) Which person has Absolute Advantage in which product?
- e) Which person has Comparative Advantage in which product?
- f) Suppose Romeo and Juliet can trade. Can you find production bundles and a trade agreement, which make both of them reach the amounts of Widgets/Gadgets unattainable in the absence of trade? If it is possible, give a numeric example.

QUESTION 3 (2 pts)

Draw a Production Possibility Frontier on which the Law of *Decreasing* Opportunity Cost holds. Explain why your PPF is like that.

QUESTION 4 (6 pts)

- a) Suppose I have three legs: one left and two rights. I have preferences over two goods: right and left shoes, which are as follows. If I own n full *triples* of shoes (one left shoe and two right shoes) then I get utility equal to n . Draw my indifference curves.
- b) Suppose I like two goods: Low-Carb Vanilla Ice Cream and Low-Carb Strawberry Ice Cream. These goods are perfect substitutes for me in the following sense: having any amount of both goods I am always willing to exchange 1 pounds of Vanilla for 2 pound of Strawberry and vice versa. Draw my indifference curves.
- c) Go back to the part a) of this question. There are two people in the economy now: me (still with three legs) and my friend (just normal bipedal guy). If my friend owns n full *pairs* of shoes (one left, one right) he gets utility $n/2$. Suppose that I own 1 left shoe and 1 right shoe and my friend owns 1 left and 1 right. Is this allocation of shoes in the society Pareto efficient? Is it efficient from the utilitarian point of view?

QUESTION 5 (5 pts)

Bob is a grad student. He likes two goods Luce pizzas and sandwiches from Blegen Hall. Bob's income is \$120. The price of one pizza Luce is \$24 and the price of a sandwich from Blegen Hall is \$5. Luce Pizza is normal good and Blegen Hall sandwiches are inferior. Suppose that miraculously Bob's income grows to \$160.

- a) Draw this event on the graph (showing two budget lines and two indifference curves as in class). What happens to the Bob's optimal consumption bundle? Discuss.
- b) Now suppose that income stays the same, but the price of Blegen Hall sandwiches falls to \$4 (which, I admit, is very unrealistic!). Draw this event on the graph. Discuss why you moved the indifference curve in the way you did.