Wilf Csaplar Jr.   Economics 477   Homework #2   Due 9/09

Do not write your name on the assignment. Write your name only on the back of this sheet of paper and staple your answers on the front of this sheet of paper. Failure to follow these directions will cost you 1 point on the assignment.

For all questions, show all work. You will not get credit for an answer given without the work.

1) (20 points) In class we did a formal proof of the equi-marginal principle. State it and explain the economics of why it holds. There is no need for a proof.

3) (30 points) Suppose that your utility function is $U(B, O) = B^{1/2} + O^{1/2}$ and bananas cost $4/lb while oranges cost $3/lb. You have $28. Prove that this is a utility function. How much of each will you buy? What is your utility? If you increased your income by $1, approximately how much would your utility increase? Show all work, and if it is hard to follow, then explain how you arrived at your answer.

3) (30 points) Suppose that your utility function was given by $U = (S*T)^{1/6}$. Prove this is a acceptable utility function. Spinach costs $5/lb and Tacos cost $8 each. You have $64 in income. How much of each will you buy? Note that I am not asking for the value of one more dollar of income.

4) (20 points) For ease of mathematics, people like to write utility functions like $U(X,Y) = X*Y$. It has the normal shape; however, this violates one of the key requirements of utility functions. What is that requirement and how can you tell it is violated? Determine if $U(X,Y) = \ln(XY)$ can be a utility function. Explain your logic.