Wilf Csaplar Jr. Economics 477 Homework #2 Due 9/19

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.

Because of a change of time of one of my courses, I have changed my office hours. They are now daily 11:00-11:40, T & Th 2:00 – 4:00, M & W 3:00 - 5:00. I may be around M & W 1:15 – 1:45. See my schedule on my web page or beside my office door to find out where I am at a particular time.

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

2) (25 points) Suppose that your utility function is $D^{1/2} + F^{1/2}$ and detergent costs \$4/unit while food costs \$3/unit. You have \$116. 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 get your answer.

3) (25 points) Suppose that your utility function was given by $U = (B*P)^{1/6}$. Bananas cost \$5/bunch and Pizza costs \$8/pizza. You have \$89 of income. How much of each will you buy? Note that I am not asking for the value of one more dollar of income.

4) (15 points) For ease of mathematics, people like to write utility functions like $U(X,Y) = X*Y$. It has the normal shape; however, that violates one of the key requirements of utility functions. What is that requirement and how can you tell it is violated?

5) (15 points) In question #2, some people might want to eliminate the exponents by squaring the utility function. Why won't that help? If your utility function is $U(X,Y) = 1/(XY)$, then why can't you transform that by taking $F(U) = 1/U = XY$?