Economics 58
Fall 2009

Problem Set # 6

Due 10/26/09

1. Text Problem 10.5.

2. Text Problem 10.8.

3. Text Problem 10.11   (Hint: Notice that the elasticities of substitution are defined with logarithms)

Note: You should also check how these results work in the Translog Cost Function in the Extensions to chapter 10.   A Translog application will be featured in the second examination in this course.

4. Consider the two elementary production functions:

      1. Fixed proportions: $q = [Min(k,l)]^s$.
      2. Perfect substitutes: $q = (k + l)^s$

    a. Explain why the parameter s (> 0) measures the returns to scale in each of these production functions.

    b. Calculate the total cost function for each of these production functions.

    c. A total cost function is said to be "separable" if it can be written as

        $C(q, v, w) = f(q) \cdot C(1, v, w)$

That is, scale effects can be separated from the "unit cost" function.

Are the total cost functions estimated in part b separable? Explain.

    d. Explain how average and marginal cost functions can always be easily derived from separable cost functions. Make that calculation for the two cost functions in part b.