EE 320
Introductory Mathematical Economics
Semester 1/2011

Assist. Prof. Dr. Duangmanee Laovakul

Homework # 4

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1. A firm's isoquant curve is given by

$$10 = L^{3/8}K^{5/8}$$

where 10 is the level of output along the isoquant. L and K stand for the inputs labor and capital respectively. Assuming that P_L = 3 baht and P_K = 5 baht, calculate the minimum level of costs which is necessary to produce this level of output and express the isocost function in algebraic form.

2. A monopolist sells his product in 3 different provinces.
   Demand in province A is $P_A = 63 - 4Q_A$.
   Demand in province B is $P_B = 105 - 5Q_B$.
   Demand in province C is $P_C = 75 - 6Q_C$.
   P_A, P_B, and P_C are price of the product sold in province A, B, and C, respectively.
   Q_A, Q_B, and Q_C are quantity of the product sold in province A, B, and C, respectively.
   The total cost (C) of this company is
   C = 20 + 15Q, where Q is the total products of this company.

   2.1 If this monopolist would like to price discriminate, find the profit maximizing price and quantity of the product in these 3 markets.
   2.2 If this monopolist does not want to price discriminate, find the profit maximizing price and quantity of this product.
   2.3 If you are this monopolist, will you discriminate your prices in these 3 markets? Explain.

3. The utility function of Miss Pranom is U = 6xy where x and y are the quantities consumed of two goods. The price of x is 5 baht per unit and the price of y is 10 baht per unit. If total expenditure is limited to 100, what is the maximum value of Miss Pranom's utility?