

MICROECONOMIC PROBLEMS

CLASS #2

Problem 1

Professors Smith and Jones are planning to write a handbook of economics. They approached this task in a scientific way, determining in the first place the form of the production function as $Q = S^{0.5}J^{0.5}$, where Q – number of pages in the handbook, $S(J)$ – the number of hours of Smith's (Jones') work. Prof. Smith thinks that his labor is worth \$3 per hour. He already spent 900 hours preparing the first draft of the handbook. Jones, whose hour of work is worth \$12, will be responsible for the final version.

- a) How many hours will Prof. Jones have to spend on preparing the final version of the handbook, when it contains:
 - i. 150 pages,
 - ii. 300 pages,
 - iii. 450 pages?
- b) Find the marginal cost of preparing the final version of the handbook for the three cases (i) – (iii) given in a).

Problem 2

Determine the cost function for a linear production function $y=4K+3L$, where K corresponds to capital while L stands for labour inputs.

Problem 3

Suppose you omit fixed costs. Would that induce underestimation of marginal costs? Prove.

Problem 4

For a certain level of factor prices the cost function of a company active in a perfectly competitive market is given by $TC(y)=5y^2+20$. What is the supply curve of this company and what is her long run equilibrium?

Problem 5

What is the short-term supply function for an industry consisting of n firms as in **Problem 4**.