

Homework 13

Due February 6, 2017

Homework will be collected at the end of the lecture on the day it is due. Submissions in any other time or manner will be ignored. The maximum score is 100. Unprofessionally looking papers or unnamed or unstapled sheets or improperly labelled questions or bad handwriting will result to a penalty up to 50% at the discretion of the grader. Plagiarism will be prosecuted and perpetrators will be caught for sure because this is homework 13.

1. FitnessPRO faces two types of customers for the indoor cycling course: L and H. Demand functions are $q_L = 10 - 0.5p$ and $q_H = 20 - p$, where p is the price per class. There are 20 H and 10 L total customers and the marginal cost of a class is zero.
 - (a) Find the optimal two-part tariff that FitnessPRO can charge if it is a monopoly and looks to serve both types. Derive the levels of consumer surplus for each type and the profit for FitnessPro. [20p]
 - (b) Suppose now that the studio decides to serve only H types. Find the optimal two-part tariff. What is the new consumer surplus for H and the profit for FitnessPRO? [20p]
 - (c) Now suppose that studio decides to offer two different bundles of classes. Derive the optimal bundle sizes and the prices of each bundle. Compute how much consumer surplus each type earns, and how much profit Fitness PRO makes from this scheme. [20p]
 - (d) Consider the results in all above parts. Which is the preferred pricing scheme for the studio? Which scheme is most efficient from a welfare perspective? [5p]

2. YouTV is a monopolistic subscription broadcasting company and distributes two programs: Sports and History. YouTV faces two types of viewers, who are willing to pay for services according to the following table:

	Sports	History
Type 1	RUB150	RUB100
Type 2	RUB80	RUB120

- (a) Assume that YouTV bundles Sports and History. Calculate the company's total revenue. [10p]
- (b) Assume that YouTV sells Sports and History separately. Calculate the company's total revenue. [10p]
- (c) Assume that type 1 consumers are willing to pay for the History program some constant a instead of RUB100. Find the values of a such that YouTV will want to bundle. [10p]

Estimated completion time: 80min

Difficulty level (normalized to UoL standards): 3/5