Problem Set 3 – Fundamental of Economics, Data Science for Management, University of Catania.

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(Problem sets should be submitted individually – one for each student – in class on Monday, October 21. Please show not only the solutions but also the relevant steps to obtain the results. Thanks and have fun!)

1. Consider two factories (A and B) with following production function: $Y^A=LKT$ and $Y^A=L^{1/3}\ K^{1/3}\ T^{1/3}$, with the prices of factors of production that are respectively w, r and t. a) Find the total cost function, the marginal cost and the average cost for A and B. b) Show that the total cost is lower than the total cost when T=27 (done in class) is given (short-run). Explain why.

2. A firm with a production function $Y=L^{1/2}\ K^{1/2}$ has to decide whether to invest in country A or B. In country A w=8 and r=6, while in B w=r=7. Explain in which country the firm will find convenient to invest and provide an economic intuition of the result.

3. Show that the average cost is equal to the marginal cost in the minimun point of the average cost. In the case of functions that are U shaped provide an economic interpretation.