

TD – Monday, October 22, 2018

### Producer Theory

The following exercises must be submitted on Monday, October 22. A particular attention will be given to your presentation.

**Exercise 1.**  $L = 3$  is the number of commodities. The production function is given by

$$f(z_1, z_2) = (z_1)^\alpha (z_2)^\beta \text{ with } \alpha > 0, \beta > 0, z_1 \geq 0 \text{ and } z_2 \geq 0$$

Using the demand of inputs and the cost function already determined in the previous TD, determine the supply and the profit function of the firm [*Suggestion*: Distinguish the two cases:  $\alpha + \beta < 1$  and  $\alpha + \beta = 1$ ].

**Exercise 2.** Let  $L$  be the number of commodities. As usual,  $y(p)$  denotes the supply of the firm at  $p \in \mathbb{R}_{++}^L$ . Using the definition of the profit function  $\pi$ , prove that  $\pi$  is a convex function.