

Econ 301 Discussion - 11/10/2023

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Content Review

- Homogeneity of cost function
- Cost minimization across factories
- Expected profit maximization

Practice Questions

1. Firm A has cost function $c(q, r, w)$. Currently it produces $q = 2$ at cost $c(2, r, w) = 10$. If input prices triple to $3r$ and $3w$, how much will it cost to produce $q = 2$ units of output?

2. Firm B has two factories with cost functions $c(q_1) = 2q_1^2$ and $c(q_2) = \frac{1}{2}q_2^2$. If Firm B wants to produce $\bar{q} = 5$ total units of output, how much should it produce at factory 2?

3. Firm C is facing an uncertain future, where it knows that with probability $1/3$ the price tomorrow will be $p_1 = 1$, and with probability $2/3$ the price will be $p_2 = 4$. If C's cost function is $c(q) = \frac{1}{2}q^2$, how much will it choose to produce today if it maximizes its expected profit before it observes the price?

4. **Review:** Firm D has production function $F(K, L) = \min\{4K, \frac{1}{2}L\}$. If Firm D is producing \bar{q} units at minimum cost and using $K = 3$ units of capital, what must its choice of L be? If input prices are $w = 5$ and $r = 20$, what is Firm D's cost function $c(q)$?