Dottorato di Ricerca in Economia Politica, XIX ciclo

Microeconomics: production and cost functions

July 3rd, 2018

Given the production function

$$q = \sqrt{L} + \sqrt{K},$$

where q is total production, L is labor utilisation and K capital utilisation.

1. classify the above function

   ◯ Cobb-Douglas ◯ CES ◯ Translog ◯ Diewert ◯ other

2. calculate the marginale rate of techincal substitution.

   $\text{MTRS}(L, K) =$ _____

3. calculate the elasticity of substitution.

   $\sigma =$ _____

4. calculate the elasticity of scale (ε) and say if the returns to scale are increasing/constant/decreasing.

   $\varepsilon =$ _____

   ◯ decreasing R.S. ◯ constant R.S. ◯ increasing R.S.

5. suppose that the cost of labour (the salary) is $w = \theta r$, where r is the unitary cost of capital, and θ is a scalar. Compute the value of the salary for which the marginal cost is linear with slope 1.

   $w =$ _____