Assignment 5

In this assignment, suppose that a country is engaged in a head-to-head trade with another country. Assume there is a product that both countries produce and consume. The production function for the country is given by:

\[ Y = A_k L_k + A_h L_h \]

where \( Y \) is output, \( A_k \) and \( A_h \) are technological coefficients, \( L_k \) is labor in the capital sector, and \( L_h \) is labor in the home sector.

1. a) The production function is given by the equation above. Explain what each term in the equation represents.

2. b) The production function is given by the equation above. Explain how the technological coefficients \( A_k \) and \( A_h \) affect production.

3. c) The production function is given by the equation above. Explain how the labor inputs \( L_k \) and \( L_h \) affect production.

4. d) The production function is given by the equation above. Explain how the production function can be used to determine the production possibility frontier (PPF).

5. The production function is given by the equation above. Explain how the production function can be used to determine the marginal product of labor (MPL).

6. The production function is given by the equation above. Explain how the production function can be used to determine the marginal rate of technical substitution (MRTS).

7. The production function is given by the equation above. Explain how the production function can be used to determine the optimal allocation of resources.

8. a) The production function is given by the equation above. Explain how the production function can be used to determine the opportunity cost of producing one good in terms of the other.

9. b) The production function is given by the equation above. Explain how the production function can be used to determine the economic rent in production.

10. c) The production function is given by the equation above. Explain how the production function can be used to determine the social welfare in production.