

Problem Set

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Perfectly competitive factor market

Let the production function

$$Y = F(K, AL)$$

have constant returns to scale. The profit, measured in Unit/Year, can be written as

$$F(K, AL) - (r + \delta)K - wL,$$

where r and w are real rental and real wage, respectively.

- (1) Derive the first order conditions for firms' profit maximization problem. Give intuitive explanations about why the conditions should hold.
- (2) Use a property of constant returns to scale production functions to show

$$Y = (r + \delta)K + wL,$$

which means that firms earn zero (economic) profit.

Answer sheet. Please write your name and id number.