Problem Set #7

ECON 407: Mathematical Economics

(**due next class**)

1. A firm produces output according to a Cobb-Douglas production function, , where is capital and is labor. Let the price of a unit of capital be and the price of a unit of labor be . Suppose total expenditures by the firm must be equal to $104.

a) Maximize output by finding the critical values and .

b) Construct the bordered Hessian. If and can you determine if the production function is maximized at ? If so, explain why there is a maximum. If not, explain why there is not a maximum.

2. Maximize profits subject to the production constraint . Use the Kuhn-Tucker conditions for a maximum to solve.