Microeconomics
RR

Exercise Set 3
September 20, 2006
(Due September 27)

A firm produces a single homogeneous output from two inputs, “labor” and “capital.” It can use one or both of two “activities.” Activity 1 requires 2 units of labor and 1 unit of capital to produce one unit of output (per period). Activity 2 requires 1unit of labor and 3 units of capital to produce one unit of output.

(1) Formulate a model that describes the firm’s production possibility set. State any needed additional assumptions. In particular, the model should describe, for each activity, what the input requirements are for producing any given nonnegative amount of output (not just one unit). Draw a figure illustrating the pairs of feasible activity levels for any given combination of total labor and total capital.

(2). Using your answer to part (1), describe the firm’s production function. Characterize the firm’s “returns to scale.”

(3) Suppose that the wage rate is w, the per-unit cost of the services of capital (per period) is r (e.g., the “rental rate”), and that w and r are fixed, independent of the firm’s usage of labor and capital. Derive a formula for the firm’s cost function.