



**B. Costs and Cost Minimization** (*Chapter 7, sections 7.1 through 7.4; skip corner-point solutions for Cobb-Douglas production functions and price elasticity of demand for inputs*)

Define: opportunity cost      explicit cost      implicit cost  
accounting cost      economic cost      sunk cost      non-sunk cost  
total cost      fixed cost      variable cost      marginal cost  
average total cost      average fixed cost      average variable cost  
isocost line  
least-cost choice point

Graph: using TC,  $w$ , and  $r$ , graph an isocost line  
output-maximization subject to a cost constraint  
cost-minimization subject to a production constraint  
for each of the three types of production functions (Cobb-Douglas, perfect complements, and perfect substitutes), be able to identify the new least-cost choice points when the following variables change:  
total cost increases or decreases  
 $w$  increases or decreases/total cost remains the same  
 $w$  increases or decreases/total output remains the same  
 $r$  increases or decreases/total cost remains the same  
 $r$  increases or decreases/total output remains the same

Explain: how to find the slope of the isocost line  
the relationship between costs of inputs and marginal productivity  
how changes (as described above) affect the firm's factor-mix of inputs  
"bang per buck" for the firm (p. 236-237)

Solve: for  $K^*$ ,  $L^*$ ,  $TC^*$ , and  $Q^*$  when given information on production and input costs

**C. Cost Curves** (*Chapter 8, sections 8.1 through 8.3; skip output elasticity of total cost*)

Define: economies of scale

Graph: using a series of least-cost choice points, graph long-run total cost  
using your graph for TC, FC, and VC, graph AFC, AVC, ATC, and MC  
using a series of short-run average costs, graph LRAC

Explain: the relationship between production and cost  
the relationships between MC and ATC, MC and AVC, and ATC and AVC  
the differences between short-run and long-run costs  
the relationship between economies of scale and returns to scale

Solve: for the long-run total cost curve for a Cobb-Douglas production function  
for TC, FC, VC, ATC, AFC, AVC (example:  $TC = Q^2 + 2Q + 40$ )  
for a series of short-run average cost curves and the corresponding long-run average cost curve