

## Homework #2

Due 10/28/2008

### Chapter 7:

#### 1. NAFTA and comparative advantage

What does the example of NAFTA (*Applying Economics Ideas 7.1*) suggest about U.S. versus Mexican comparative advantage in the production of construction equipment? Of vacuum cleaners? What are the potential benefits and costs of NAFTA for U.S. and Mexican workers? Consumers? Owners of productive resources other than labor? (Note: I omitted the portion of the question about Hecksher-Ohlin. You do not need to answer this portion)

### Chapter 8:

#### 4. Economies and diseconomies of scale.

Do you think the business of running a college is subject to economies or diseconomies of scale? Which parts of the college's operation (such as library, dormitories, faculty salaries, moving students between classes, and so on) are subject to economies of scale, diseconomies of scale, or constant returns to scale? (Note: You do not need to use graph paper, but you do need to make your graph neat enough that it demonstrates that you have answered the question)

#### 5. Total cost curves

Draw a set of coordinate axes on a piece of graph paper. Label the x axis "Output" (0 to 20 units) and the y axis "Cost" (0 to 20 units). Plot the following (x,y) points on your graph: (0,4), (2,6), (4,7), (7,8), (9,9), (11,11), and (13,14). Connect these points with a smooth curve and label it "total cost." Working from this curve, construct a total fixed cost curve and a total variable cost curve for the same firm. (Note: You do not need to use graph paper, but you do need to make your graph neat enough that it demonstrates that you have answered the question)

#### 6. Marginal and average cost curves

Draw a second set of coordinate axes on another piece of graph paper (or under the graph in question 5 on the same piece). Label the horizontal axis "Output" (0 to 20 units) and the vertical axis "Cost per unit" (0 to 2 units, in tenths of a unit). Using as a basis the total cost curve, total variable cost, and total fixed cost curves you drew for problem 5, construct the following curves on your new graph: marginal cost, average total cost, average variable cost, and average fixed cost. (Hint: make a table from the values in question 5. Calculate marginal cost, average total cost, average variable cost, and average fixed cost. Then, graph these new calculations against output.)

#### 8. Diminishing returns

Suppose that you examine the relationship between the amount of coal burned per week in a certain power plant and the amount of electricity generated per week. You find that for small amounts of coal—too small even to bring the boiler up to the temperature needed to make steam—no electricity can be produced. After a certain minimum amount of coal is burned, the plant begins to operate. From that point on, the added amount of electricity generated per added ton of coal burned is constant over a wide range. Then a point is reached which burning more coal produces no more electricity. Sketch the total physical product curve for this plant, and draw a graph showing how marginal physical product varies as output changes. Does this production process obey the law of diminishing returns?