Homework 5 & 6

1. The following table shows the hourly production of a firm depending on how many workers it employs.

<table>
<thead>
<tr>
<th>Number of Workers</th>
<th>Total Output</th>
<th>Marginal Revenue Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>27</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>34</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>45</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>49</td>
<td>4</td>
</tr>
</tbody>
</table>

a. Fill in the marginal revenue product for each worker (hint: you may want to calculate marginal physical product first).

b. The firm can sell as many units of the product as it wants for a price of $2. In the space below, draw the firm’s demand curve for labor. (Put the number of workers on the horizontal axis and the hourly wage rate on the vertical axis. For any given wage, show the number of workers the firm wants to hire.)

c. If the wage rate is $10, how many workers should the firm hire? Why?

2. What will be the effect of each of the following on the supply curve for labor, demand curve for labor, equilibrium wage, and equilibrium number of workers for auto manufacturing?
   a. Machines, which are used in place of workers, become more efficient.
   b. Workers take training classes that make them more productive in manufacturing autos.
   c. The price of autos increases.
3. For each of the following terms, explain in your own words what the term means and give an original example (not from lecture or the book) of how this results in people getting paid different wages.

a. compensating wage differentials

b. human capital

4. What is the difference between the signaling theory and the human capital theory of why education results in higher earnings?

5. We discussed a variety of theories of discrimination. Which theories can result in discrimination persisting over time? Explain.

6. Tell me the two things you found most interesting or unexpected about the government’s role in redistributing income (government programs and taxes). Tell me the two things you found most interesting or unexpected about poverty (what it is, who is in poverty, and poverty rates).
7. Your next-door neighbor likes to cook sauerkraut and sausages every night. However, the smell of sauerkraut and sausages cooking makes you sick. How is this an example of an externality?

b. How does Coase suggest we can solve the problem?

c. How does Pigou suggest we can solve the problem?

d. Do we (society) want there to be zero amount of sauerkraut and sausages cooked? What is the efficient amount (I am looking for a formula, not an actual number).

8. Explain what each of the following terms means:
Dow Jones Industrial Average

dividend

liquidity

stock

bond

mutual fund
9. Your father-in-law owns a company that does lawn care. While you are visiting over Thanksgiving, since you are a budding economist he asks your advice about two problems he is facing. Your father-in-law can buy a new lawn mower that is state of the art. If he buys this lawn mower, with his current workforce he can do $5,000 additional business per summer for the next five summers, the expected life of the lawnmower. (In other words, if he buys the mower, his only additional costs are the cost of the lawnmower which he pays up front and his additional revenue will be $5,000 per year for the next five years and after five years the lawnmower won’t bring him any additional revenue.) He says to you, “Look, the price of the lawnmower is only $22,000 and I will make $25,000 in revenue so obviously I should buy it.” Assuming the interest rate is 5%, how do you respond to his statement? Is he right or is he wrong to buy the machine? Show your calculations and explain to him (in plain terms a non-economist would understand) why you are advising him as you do.
10. By this time you have a pretty good idea about multiple-choice tests in this class. I want YOU to write two multiple-choice questions that could be used on the third test or on the final exam for material covered on the third test. Each question should cover material we have discussed since the last midterm. The questions can be on any subject we covered, but cannot be from the old exams that are on my web page. I will read through these questions and the ones that I think are best will appear on the exam. This means you have an incentive to write good questions – if you write good questions, you increase the likelihood your question is on the test and thus that you will get the question correct. (Remember, I don’t really like to use questions that are just definitions – try to make the question apply the material we have learned.) Make sure the question is clear (you know how much you hate confusing questions) and has either 4 or 5 answers listed. Put a star next to the answer that is correct.

Multiple-Choice Question #1

Multiple-Choice Question #2

Your Name: