Factor Market Problem Set Questions

1. Define the term and explain a situation that demonstrates the 'real world' application of each of the following. Make sure your example clearly demonstrates your understanding of each concept.

a. Marginal Product of Labor:

b. Draw a "Backward Bending Labor Supply Curve" and explain why it looks the way it does. *Use income effect and substitution effect to explain this:*

c. Derived Demand:

d. Marginal Revenue Product (MRP):

e. Marginal Resource Cost (MRC):

f. Perfectly Competitive Labor Market:

g. Monopsony & characteristics of a Monopsony:

h. Wage Taker vs. Wage Maker:

2. Use the chart regarding a perfectly competitive Yo-Yo factory to complete the following:

a. Calculate the marginal product of labor. Fully explain why the number of yo-yos produced increases at a decreasing rate as more workers are hired. Identify and explain the three stages of returns.

b. Calculate the total revenue and marginal revenue product of labor. Explain how a firm decides how many workers to hire. If the price of each yo-yo is $2 and the wage was constant at $25 per day, how many workers should be hired? Assuming that fixed costs are $10, how much profit will they earn?

c. Assume there is an increase in demand of yo-yos and they are now $3 each. How many workers should be hired? Explain how you got your answer. Assuming that fixed costs are $10, how much profit will they earn?

Number of Workers	Output (Quantity)	Marginal Product	Total Revenue	Marginal Revenue Product
0	0	-----		----
1	20			
2	50			
3	70			
4	85			
5	95			
6	100			
7	103			
8	104			
9	100			

3. Assume that the DJ Dirty Elbow Company sells output in a perfectly competitive product market and hires workers in a perfectly competitive labor market.

Units of Labor (L)	Total Product (TP)	Marginal Product (MP)	Product Price (P)	Total Revenue (TR)	Marginal Revenue Product
0	0		$2		
1	17		$2		
2	31		$2		
3	43		$2		
4	53		$2		
5	60		$2		
6	65		$2		

a. Complete the marginal product, total revenue, and marginal revenue product columns in the table.
b. What happens to the marginal product as more units of labor are hired? What is the name for this? What causes it?

c. If the market wage is $15, how many workers should DJ Dirty Elbows hire? Explain.

d. If the government placed a minimum wage at $25, how many workers should be hired? Explain.

4. Assume that the price of raspberries, a substitute for strawberries, decreases.

a. What happens to the price of strawberries in California? Why?

b. What happens to demand for strawberry pickers in California? Why?

c. If many strawberry pickers are immigrants and a new tough immigration law decreases the amount of immigrants in the country, what will happen to the wage paid to strawberry pickers? Explain.

Robot Units	Total Product
0	0
1	50
2	85
3	115
4	140
5	150
6	155

5. Scott Inc. can sell as many belt buckles as it wants at $4 each. It can rent as many robots as it wants at a cost of $100 a day.

a. In what type of product market does the firm sell its output? Explain.

b. In what type of resource market does the firm rent robots? Explain.

c. The firm's production function is shown to the left. Calculate the marginal product for each robot unit. **1= , 2= , 3= , 4= , 5= , 6=**

d. Calculate the marginal revenue product for each robot unit.
1= , 2= , 3= , 4= , 5= , 6=

e. How many robots should Scott Inc. rent? Explain.

6. Assume that a firm is deciding how much labor and capital it should hire. At its current employment level of labor and capital, a firm observes the following.

Labor	Capital
Marginal Product of Labor = 30	Marginal Product of Capital = 60
Price of labor = $3	Price of Capital = $15

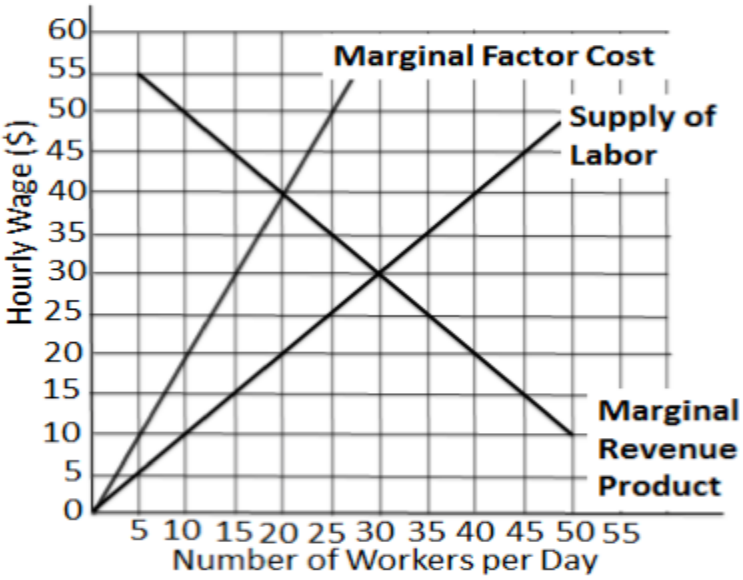
a. Explain the least-cost rule for combining resources.

b. What should this firm do in order to achieve the least-cost combination of labor and capital? Explain

c. Assume that the marginal product for labor fell to 12 units. What should this firm do in order to achieve the least-cost combination of labor and capital?

7. A firm produces surfboards by using labor and capital. The price of labor is $10/unit and the price of capital is $20/unit. At current output levels, the marginal product of labor is 40 surfboards and the marginal product of capital is 60 surfboards. To reduce the total cost of producing the current quantity of surfboards, how should the firm change spending on labor and capital?

8. The graph at left shows a monopsony labor market. In the absence of any regulations, How many workers will this monopsonist hire and what wage rate will it pay? Explain



Why is the MFC steeper or "higher" than the Supply of Labor?