

1. The following table shows production figures for WAS corporation, which sells wuzzies. Labor is WAS's only input (therefore its total product is WAS's wuzzy output). Complete the marginal product of labor (MP_L) column of Table 1.

Table 1

<u>Labor input</u> (workers per hour)	<u>Total Product</u> TP (wuzzies per hour)	<u>Marginal Product of labor</u> MPL (wuzzies)	<u>VMPL</u> (\$)	<u>Total Revenue</u> TR (\$/hour)
0	0	-----	-----	0
1	19	19	38	38
2	36	17	34	72
3	51	15	30	102
4	62	11	22	124
5	72	10	20	144
6	79	7	14	158
7	84	5	10	168

1. Suppose the equilibrium price of a wuzzy is \$2.00. Given this output price, compute the total revenue (TR) and value of marginal product of labor (VMP_L) columns of Table 1.

2. In your own words, define the marginal product of labor.

The marginal product of labor is the additional amount of output that is produced each time the firm hires an additional worker.

3. In your own words, define the value of the marginal product of labor.

The value of the marginal product of labor is the additional amount of revenue that is generated each time the firm hires an additional worker. It is also equal to the marginal product of labor times the price of the output.

4. What is the maximum amount the firm should pay the 5th worker per hour? **$VMPL = \$20$** If labor is the firm's **only** cost and the firm **pays all workers the same as it pays the 5th worker**, how much would profits be at that employment level and wage? **$\$44$**

$$TR = 144; TC = 20 * 5 = 100; Profit = TR - TC = 44$$

5. What is the maximum amount the firm should pay the 6th worker per hour? **VMPL = \$14** If labor is the firm's **only** cost, and the firm **pays all workers the same as it pays the 6th worker** how much would profits be at that employment level and wage? **\$74**

$$\mathbf{TR = 158; TC = 14*6 = 84; Profit = TR - TC = 74}$$

6. Suppose the price of a wuzzy rises to \$4.00, ceteris paribus. What is the maximum amount the firm should pay the 5th worker per hour? **VMPL = 10*4 = 40** If labor is the firm's **only** cost and the firm **pays all workers the same as it pays the 5th worker**, how much would profits be at that employment level and wage? **\$88**

$$\mathbf{TR = 72*4 = 288; TC = 40*5 = 200; Profit = TR - TC = 88}$$

7. List and describe two things that could raise the amount that a firm would be willing to pay a given worker.

A rise in the price of the good will raise the workers' value of marginal product. An increase in worker productivity will raise his/her marginal product and thus his/her value of marginal product.