

4. Nimbus, Inc., makes brooms and then sells them door-to-door. Here is the relationship between the number of workers and Nimbus's output during a given day:

(L) Workers	Q Output	Marginal Product	Total Cost	Average Total Cost	Marginal Cost
0	0		<u>0</u>	<u>0</u>	
		<u>20</u>			<u>5</u>
1	20		<u>300</u>	<u>15</u>	
		<u>30</u>			<u>3.33</u>
2	50		<u>400</u>	<u>8</u>	
		<u>40</u>			<u>2.5</u>
3	90		<u>500</u>	<u>5.56</u>	
		<u>30</u>			<u>3.33</u>
4	120		<u>600</u>	<u>5</u>	
		<u>20</u>			<u>5</u>
5	140		<u>700</u>	<u>5</u>	
		<u>10</u>			<u>5</u>
6	150		<u>800</u>	<u>5.33</u>	
		<u>5</u>			<u>2.0</u>
7	155		<u>900</u>	<u>5.81</u>	

- Fill in the column of marginal products. What pattern do you see? How might you explain it?
- A worker costs \$100 a day, and the firm has fixed costs of \$200. Use this information to fill in the column for total cost.
- Fill in the column for average total cost. (Recall that  $ATC = TC/Q$ .) What pattern do you see?
- Now fill in the column for marginal cost. (Recall that  $MC = \Delta TC / \Delta Q$ .) What pattern do you see?

5. You are the chief financial officer for a firm that sells gaming consoles. Your firm has the following average-total-cost schedule:

Quantity	Average Total Cost
600 consoles	\$300
601	301

180,000

Your current level of production is 600 consoles, all of which have been sold. Someone calls, desperate to buy one of your consoles. The caller offers you \$550 for it. Should you accept the offer? Why or why not?

- 4.a) For the pattern, the margin has stable increasing and it increases to maximum point and then it decreases. For the explanation, initially, we produce lot of output with few labor that got high margin but we keep increasing of output which means we have to increase labor as well which make less margin because of cost.
- 4.c) At first, we have high output with low cost but when we would like to increase number of output, we have to hire more labor which increase the cost. It seems good at first until the output cannot be high like before meanwhile the cost increases constantly for a while and it makes the average cost decreasing.
- 4.d) Initially, we have only one labor and have 20 output and we increase labor which can get more number of output. When we keep increasing labor, it can make more output but the margin of output get less than before. So, the cost increases constantly but the margin of output decreases which affects marginal cost to increase.
- 5) I should not accept the offer because for the next console has 901 \$ but I just receive only 550 \$ which means I got loss for 351 \$. So, it is not worthy for producing the next console.