

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:

Workers	Output	Marginal Product	Total Cost	Average Total Cost	Marginal Cost
0	0	0	200	0	0
1	20	20	300	15	5
2	50	30	400	8	3.33
3	90	40	500	5.56	2.5
4	120	30	600	5	3.33
5	140	20	700	5	5
6	150	10	800	5.33	10
7	155	5	900	5.81	20

$$ATC = \frac{TC}{Q}$$

$$MC = \frac{\Delta TC}{\Delta Q}$$

- 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

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?

a) According to the marginal products, it has the maximum of 3 units of workers as it increases. Then, after the 3 units of workers, it started to decrease. It can be explained in the law of variable proportion.

c) ATC decreases from 1 worker to 5, then it starts to increase after that.

d) MC decreases from 20 units of output to 90 units, then increases after 90 units.

$$5. \quad 600 \text{ consoles} \rightarrow 600 \times 300 = 180,000$$

$$601 \text{ consoles} \rightarrow 601 \times 301 = 180,901$$

$$180,901 - 180,000 = \$901 \text{ (cost to produce)}$$

No! If you accept the offer, you will lose the profit as the cost of another additional is higher than the offer

901 = cost of production

$$550 = \text{offer} \quad 901 - 550 = \$351 \text{ loss.}$$