

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		—	—	
		—			—
1	20		—	—	
		—			—
2	50		—	—	
		—			—
3	90		—	—	
		—			—
4	120		—	—	
		—			—
5	140		—	—	
		—			—
6	150		—	—	
		—			—
7	155		—	—	

- 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?

④ a) marginal product initially increase till 3 units of water after this it starts to decrease. This pattern reflects the law of demand.

b)

worker cost	=	100
fixed cost	=	200
Total cost	=	200 + 100 (worker)

c) Average total cost = $\frac{\text{total cost}}{\text{output}}$

→ initially decrease and after 5 unit of workers it start to increase. ATC is U-shaped

d) marginal cost = $\frac{\text{change in TC}}{\text{change in Q}} = \frac{\text{change in TC}}{\text{marginal product}}$

pattern → initially decrease and after 90 units of output it starts to rise. Here MC is V-shaped

⑤ note: Total cost = Average total cost × Quantity

Total cost of 600 consoles is $\$ 300 \times 600 = \$ 180,000$

Total cost of 601 consoles is $\$ 301 \times 601 = \$ 180,901$

Marginal cost of 601 consoles is $180,901 - 180,000 = \$ 901$

∴ The marginal cost of 601 consoles is higher than the offered price, so the offer should not be accepted.