

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

WORKER	OUTPUT	MARGINAL PRODUCT	TOTAL COST	AVERAGE TOTAL COST	MARGINAL COST
0	0		200		
1	20	20	300	15	5
2	50	30	400	8	3.33
3	90	40	500	5.56	2.50
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

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

$$\frac{300}{20} = 15, \quad \frac{400}{50} = 8, \quad \frac{500}{90} = 5.56$$

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

⑤

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

$$301 = \frac{TC}{601}$$

∴ I shouldn't accept the offer because I would earn 901
which is more than they offer (550)

$$TC = 180,901$$

$$300 = \frac{TC}{600}$$

$$TC = 180,000$$

$$MC = 180,901 - 180,000$$

$$= 901$$