

HW#11 Due April 29, 2021

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	100	00	-
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

- 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) The marginal product increases at first until, at some points, the marginal product starts to decrease according the characteristic of diminishing
 - b) in the table
 - c) The average total cost is a V-shaped. ATC is less than MC as MC increases and more than MC as MC decreases
 - d) The marginal cost is V-shaped too. It intersects ATC at the minimum point.
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⑤ At the output of 600, total cost is

$$TC = 600 \times 300 = \$180,000$$

At the output of 601, total cost is

$$TC = 601 \times 301 = \$180,901$$

$MC = \frac{dTC}{dQ}$
 $= \frac{\Delta TC}{\Delta Q}$
 $= \frac{901}{1}$

So you should not affect the offer of selling at \$550
because the marginal cost is \$901 #