

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	—	\$200	—	—
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. In the column of marginal product, marginal product increase at first until the 4th workers, the marginal products decline because of diminishing marginal product. Even though the addition of the workers leads the output to increase but the marginal products still decrease after 3rd workers because the company has fixed resources.
- c. The average total cost is decreasing at first and after that it is beginning to increase at the quantity of 140 brooms.
- d. The marginal cost is decreasing at first and after that it is beginning to increase at the quantity of 90 brooms.

5. The total cost of 600 consoles is = $600 \times \$300 = \$180,000$

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

∴ The total should not be accept because the marginal cost of 601 consoles is \$901 that higher than the offered price.