

HW#10 Due November 10, 2020

$$TC = TVC + TFC$$

variable cost fixed cost

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 <i>L</i>	Output <i>Q</i>	Marginal Product	Total Cost <i>TC</i>	Average Total Cost <i>ATC</i>	Marginal Cost <i>MC = \frac{\Delta TC}{\Delta Q}</i>
0 $\times 100$ 0	0		$0 + 200 = 200$	N/A	5
1 $\times 100$ 100	20	20	$100 + 200 = 300$	15	3.3
2 $\times 100$ 200	50	30	$200 + 200 = 400$	8	2.5
3 $\times 100$ 300	90	30	$300 + 200 = 500$	5.5	3.3
4 $\times 100$ 400	120	20	$400 + 200 = 600$	5	5
5 $\times 100$ 500	140	10	$500 + 200 = 700$	5	10
6 $\times 100$ 600	150	5	$600 + 200 = 800$	5.3	20
7 $\times 100$ 700	155		$700 + 200 = 900$	5.8	

- 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.) The pattern is at the first time the marginal product is increase but after worker 3, it decreases.
So, it is diminishing marginal product.

C. The pattern is at the first time the average total cost is decrease but after worker 5, it increase.

d. The pattern is at the first time the marginal cost is decrease but after worker 2, it increase.

5. the total cost

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

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

$$\begin{aligned}\text{marginal cost} &= 180,901 - 180,000 \\ &= 901\end{aligned}$$

- Should not accept because the marginal cost higher than the marginal benefit.