HW#10 Due November 10, 2020

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	0	
		20/1 = 20			5
1	20		300	15	
		20/1 = 20			10/2
2	50		400	8	
		40			2.5
3	90		500	50/9	
		30			10/3
4	120		600	5	
		20			5
5	140		700	5	
		10			10
6	150		800	11/3	
		5			20
7	155		900	180/31	

a. Fill in the column of marginal products. What pattern do you see? How might you explain it?

b. 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.

c. Fill in the column for average total cost. (Recall that $ATC = TC/Q$.) What pattern do you see?

d. 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?

b. 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.

TC = FC + VC

TC = 200 + 100x

c. Fill in the column for average total cost. (Recall that $ATC = TC/Q$.) What pattern do you see?

When output quantity increase from 0 to 120 output, the Average total cost (ATC) went down to minimum point of its curve. And then ATC surged swiftly.

d. Now fill in the column for marginal cost. (Recall that $MC = \Delta TC/\Delta Q$.) What pattern do you see?

In the first period of MC, it declined untill MC equal to 5 and then shot up rapidly. It across, moreover, to minimum point of ATC.

5. You are the chief financial officer for a firm that sells gaming consoles. Your firm has the following average-total-cost schedule:

Q ATC

Quantity	Average Total Cost
600 consoles	$300
601	301

$TC = FC + VC$

$ATC = AFC + AVC$

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?

$ATC_1 = \frac{TC}{Q}$

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

$TC_1 = 180000$

$ATC_2 = \frac{TC_2}{Q}$

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

$TC_2 = 180901$

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

$= \frac{TC_2 - TC_1}{601 - 600}$

$= \frac{180901 - 180000}{1}$

$MC = 901$

$TR = P \times Q$

$= 550 \times 600$

$= 330{,}000$

Profit Solution

$\Pi = TR - TC$

$= 330000 - 180{,}000$

$= 150000$

We should accept the offer because The profit from selling console with the price 550 per piece will almost cover all of our TC in production.