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 (ATC = TC/Q)	Marginal Cost (MC = ΔTC/ΔQ)
0	0		200	____	
		____			(300-200)/(20-0) = 5
1	20	20	300	15	
		____			3.33
2	50	30	400	8	
		____			2.50
3	90	40	500	5.56	
		____			3.33
4	120	30	600	5	
		____			5
5	140	20	700	5	
		____			10
6	150	10	800	5.33	
		____			20
7	155	5	900	5.81	

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?

4.

a) the marginal product of workers is increases then decrease because the capital and the workers' selling area is fixed, so adding more worker might not give the additional output in comparison to how the earlier workers gave.

b) total cost = fixed cost + workers × wage rate

c) the pattern found is a u-shaped curve, first it decreases exponentially then it starts to slow down then it increases in the same rate.

d) also a u-shaped curve

5.

- if the marginal benefit exceeds the marginal cost → accept the offer
- also the variable cost and fixed cost

making 1 more console :

total cost = 601 × 300
= 180,901

before :

total cost = 600 × 300
= 180,000

- the marginal cost of producing 1 more console is 180901 − 180000 = 901
  - the marginal benefit is smaller than the cost: 550 − 901 = −351
    ↳ negative value

∴ should not accept the offer