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			100/20 = 5
1	20		300	15	
		30			100/30 = 10/3
2	50		400	8	
		40			100/40 = 2.5
3	90		500	5.5	
		30			100/30 = 10/3
4	120		600	5	
		20			100/20 = 5
5	140		700	5	
		10			100/10 = 10
6	150		800	5.3	
		5			100/5 = 20
7	155		900	5.8	

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?

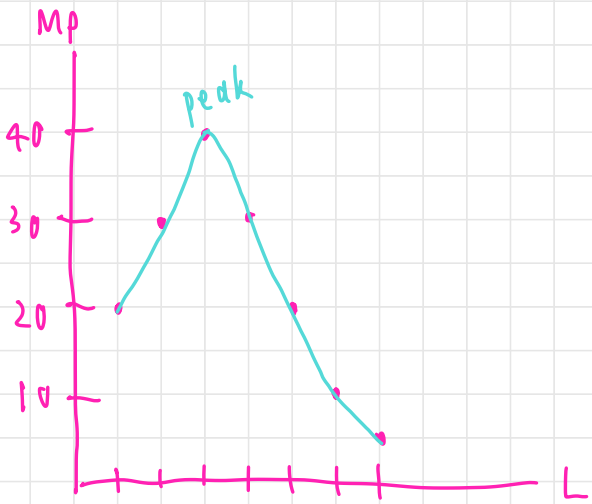
d. Now fill in the column for marginal cost. (Recall that $MC = \Delta TC/\Delta Q$.) What pattern do you see?

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?

2. Marginal product pattern

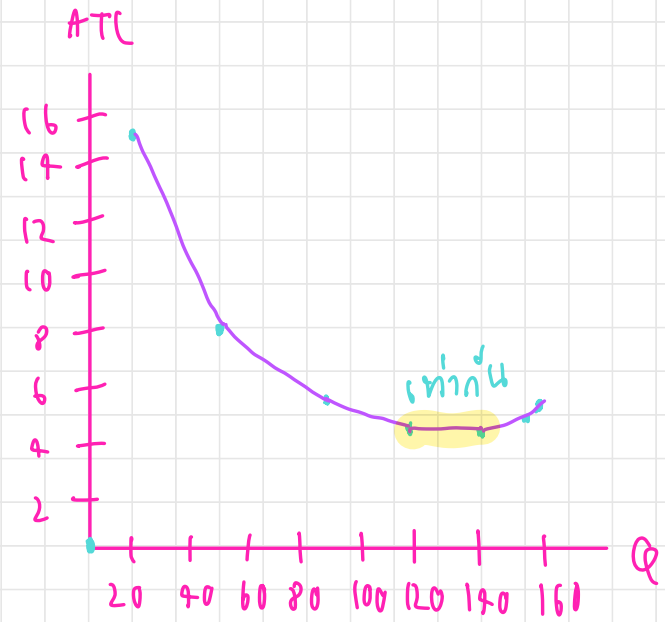


when we add more workers, MP rises until it reaches its peaks at = 40 when L = 3.

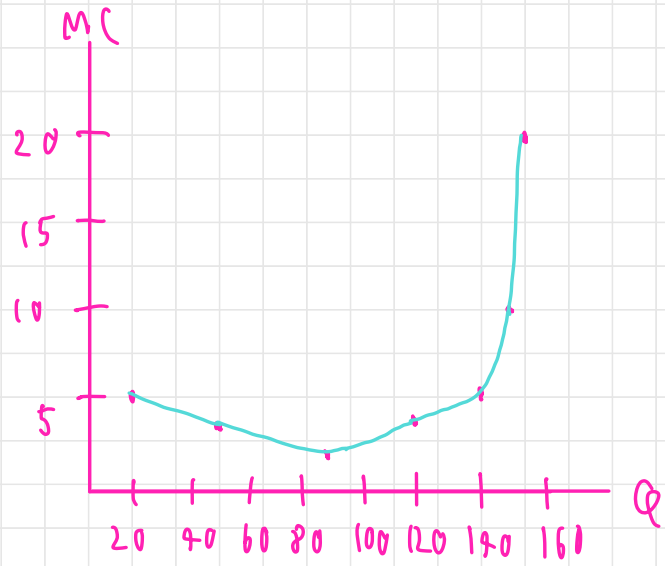
When L is $1 \leq X \leq 3$, MP increases by 10 per 1 additional unit of worker.

When L is $x > 3$, MP d decreases due to 'Law of diminishing', mismatch between amount of workers and capital one.

c. ATC pattern



d. MC



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

(5.) ATC of 600 consoles is $300

so 1 ——— is $0.5

600 ——— is $301

so 1 ——— is $0.5017

Ans: Should accept the offer even if additional unit of console contributes to a rise in ATC. Creating 600 consoles costs $300, so the capital of 1 console is only $0.5. Creating 601 consoles cost $301, so the capital of 1 console is $0.5017, increases a little bit. In conclusion, someone offers to buy you 1 console with $550, and your cost is just $0.5017, so you should sell it because you still get a profit