

Notes from Discussion Chapter 13

3.

Hans	Quantity of Fish	Marginal Product	Total Cost
0	0		$10+(5*0) = 10$
1	10	$(10-0)/(1-0) = 10$	$10+(5*1) = 15$
2	18	$(18-10)/(2-1) = 8$	$10+(5*2) = 20$
3	24	$(24-18)/(3-2) = 6$	25
4	28	$(28-24)/(4-3) = 4$	30
5	30	$(30-28)/(5-4) = 2$	35

- a) Diminishing Marginal Product
- b) Production function: relationship between Q (Output) and Hans (Input)
 - a. Exponentially increasing but at smaller rates
- c) Total Cost curve relates to TC to Q
 - a. Exponentially increasing but at larger rates
 - b. Shape also due to diminishing MP

4.

Workers	Output	Marginal Product	Total Cost	Average Total Cost	Marginal Cost
0	0		200		
1	20	20	300	15	$(300-200)/(20-0) = 5$
2	50	30	400	8	$100/30 = 3.33$
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

- a) $MP \uparrow$ at Low Q (division of labor/ specialization)
 - a. $MP \downarrow$ at High Q (Crowding)
- b) Total Costs
- c) $ATC = TC/Q$
 - a. ATC is U-shaped: Parabola
- d) $MC = \Delta TC / \Delta Q$
 - a. Also U-shaped
- e) MC vs. ATC
 - a. To the left of where the lines intersect each other in the graph:
 - i. $MC < ATC \Rightarrow ATC \downarrow$

- b. To the right of where the lines intersect:
 - i. $MC > ATC \Rightarrow ATC \uparrow$
- c. MC and MP have inverse relationship

5.

Quantity (Players)	Average Total Cost	Total Cost	Marginal Cost
600	\$300	\$180,000	
601	\$301	\$180,901	\$901

- a) Sell 601st player for \$550?
 - a. If $MR \geq MC \Rightarrow$ Sell ($\cap \uparrow$)
 - b. If $MR < MC \Rightarrow$ No ($\cap \downarrow$)
 - c. $MR = \$550$
 $MC = \$901$
 $MR < MC \Rightarrow 550 < 901 \Rightarrow$ Don't sell

11.

Quantity	Variable Cost	Total Cost	AVC (TVC/Q)	ATC (TC/Q)	MC ($\Delta TC / \Delta Q$)
0	0	30			
1	10	40	10	40	10
2	25	55	12.5	27.5	15
3	45	75	15	25	20
4	70	100	17.5	25	25
5	100	130	20	26	30
6	135	165	22.5	27.5	35

- b) Graph ATC, AVC, MC

12.

	FIRM A	FIRM A	FIRM B	FIRM B	FIRM C	FIRM C
Q	TC	ATC	TC	ATC	TC	ATC
1	60	60	11	11	21	21
2	70	35	24	12	34	17
3	80	26.7	39	13	49	16.3
4	90	22.5	56	14	66	16.5
5	100	20	75	15	85	17
6	110	18.3	96	16	106	17.7

7	120	17.1	119	17	129	18.4
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Economies of Scale \Rightarrow As $Q \uparrow$, $ATC \uparrow$

- Firm A has economies of scale
- Firm B has diseconomies
- Firm C has economies through $Q = 3$, and diseconomies for $Q \geq 4$