

HOMework V
SOLUTIONS

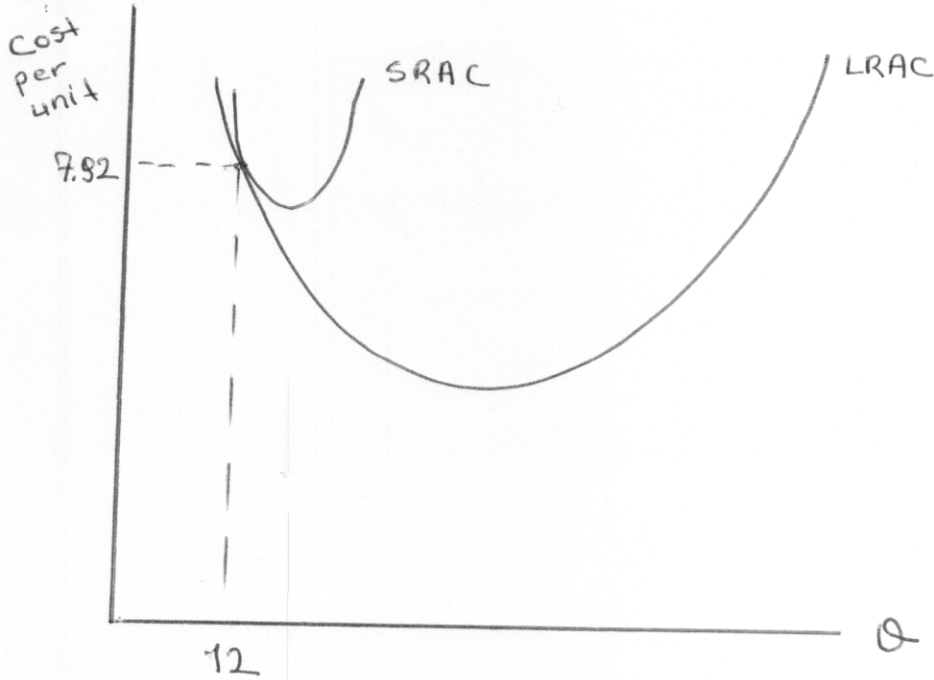
1. a

Q	K	L	TC	LRAC
3	3	2	60	20
7	4	2,5	77,5	11,07
12	5	3	95	7,92
16	5,5	3,5	107,5	6,72
19	6	4	120	6,32
21	6,5	4,5	132,5	6,31
22	7	5	145	6,59

b.

Q	K	L	TFC	TVC	TC	AFC	AVC	ATC	MC
3	5	1	50	15	65	16,67	5,00	21,67	21,67
7	5	2	50	30	80	7,14	4,29	11,43	3,75
12	5	3	50	45	95	4,17	3,75	7,92	3,00
16	5	4	50	60	110	3,13	3,75	6,88	3,75
19	5	5	50	75	125	2,63	3,95	6,58	5,00
21	5	6	50	90	140	2,38	4,29	6,67	7,50
22	5	7,5	50	112,5	162,5	2,27	5,11	7,39	22,50

c.

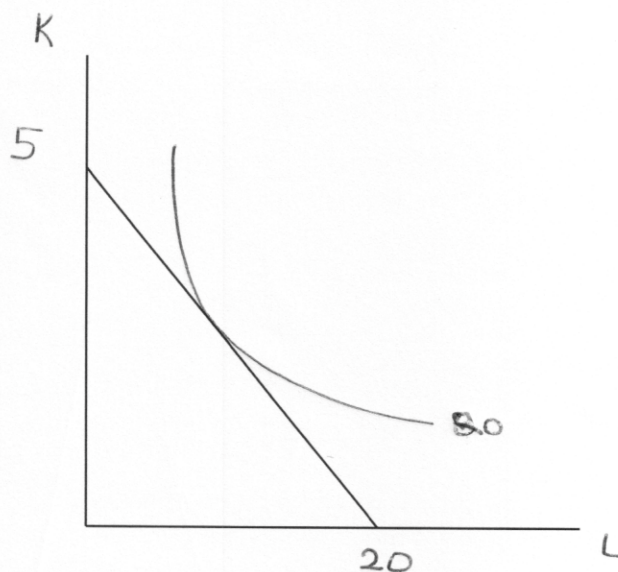


2. Consider the following Total Product schedule of Ahmet's Organic Farm:

Fertilizer input (100 kg-bags)	Total Product (vegetables in kgs)	Average Product	Marginal Product
0	0	-	-
1	14	14	14
2	36	18	22
3	66	22	30
4	100	25	34
5	130	26	30
6	156	26	26
7	175	25	19
8	184	23	9
9	185.4	20.6	1.4
10	180	18	- 5.4
11	165	15	-15
12	144	12	-21

- c. The diminishing returns set in with the addition of fifth unit of fertilizer input. In agriculture the reason for diminishing returns is that within a given amount of land successive increases in variable input, yield smaller and smaller increases in crop output.
- d. When $AP < MP$, AP is increasing; when $AP > MP$, AP is decreasing; when $AP = MP$, AP is at its maximum.

3a.



The equation for isocost: $200 = 10 * L + 40 * K$

b. If this firm is producing efficiently, $MRTS = MP_L / MP_K = -P_L / P_K =$ slope of isocost. $-P_L / P_K = -10/40 = 0.25$ is the marginal rate of substitution between labor and capital.

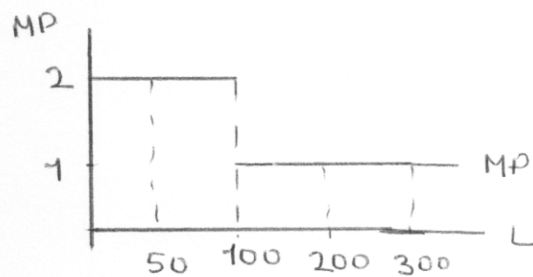
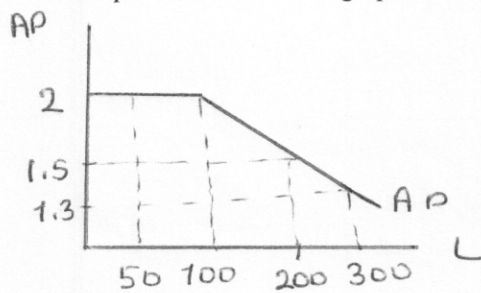
c. Tangency point of the isoquant and isocost line

4.a.	Q	TFC	TVC	TC	AFC	AVC	AC	MC
	0	12	0	12	-	-	-	-
	6	12	3	15	2	0.5	2.5	0.50
	15	12	6	18	0.8	0.4	1.2	0.33
	21	12	9	21	0.58	0.43	1.01	0.50
	24	12	12	24	0.5	0.5	1	1
	26	12	15	27	0.46	0.58	1.04	0.67
	27	12	18	30	0.44	0.67	1.11	3

5. a. Fill in the below table if the wage rate is 5 TL. and this firm has fixed cost of 100 TL.

Labor	Output	Average Product	Marginal Product	Total Cost	Marginal Cost
0	0	-	-	100	-
50	100	$100/50=2$	$100/50=2$	350	$250/100=2.5$
100	200	2	2	600	2.5
200	300	1.5	1	1100	5
300	400	1.3	1	1600	5

b. Graph the firm's average product (AP) marginal product (MP) curves on separate graphs.



c. Graph the firm's marginal cost curve.

