Economics 1 Answer Topics

Week 7

Exercises 7.3d 7.4c 7.5a 7.6d 7.7b 7.15b 7.16c 7.17a 7.19c.

Exercise 7.11

a) Fixed inputs: machines and refrigerators. Variable inputs: yogurt mix, cups, sprinkle, toppings, and workers.

c) 110, 90, and 70. It falls because the other inputs are fixed: diminishing returns to labour.

Exercise 7.12

a) $AC(1) = 300$, $AC(2) = 195$, $AC(3) = 158.3$, $AC(4) = 138.75$, $AC(5) = 128$, $AC(6) = 121.7$, $AC(7) = 124.3$, $AC(8) = 133.75$.

c) (i) Higher output allows better division of labour and specialisation. (ii) Average cost fall for low levels of output because of falling average fixed cost and, in this case falling marginal cost (which implies falling average variable cost); for higher levels of output the average fixed cost falls more slowly, and it is offset by increasing average variable costs. (iii) Average cost falls when it is higher than marginal cost, and increases when it is lower.

Exercise 7.13

a)

Q	TC	FC	VC	ATC	AVC	AFC	MC
0	**32**	32	0	-	-	-	-
1	50	32	18	50	18	32	**18**
2	72	32	**40**	36	20	16	22
3	**116**	32	84	38,7	28	10,7	44
4	166	32	134	41,5	33,5	8	**50**
5	232	32	200	46,4	**40**	6,4	66

b) The spreading effect is stronger for $Q < 2$, the diminishing returns effect is stronger for $Q > 2$.

Exercise 7.14

a) When $K = 4$, $AP_L = 2/L^{0.5}$, $MP_L = 1/L^{0.5}$.
b) It falls.
c) Higher.

Exercise 7.18

a) The marginal product of labour falls owing to the law of diminishing returns. Wage rate is 75.
b)

Q	TC	VC	ATC	AVC	AFC
0	75	0	-	-	-
6	150	75	25.0	12.5	12.5
11	225	150	20.5	13.6	6.8
15	300	225	20.0	15.0	5.0
18	375	300	20.8	16.7	4.2

c) Spreading effect is the decreasing average fixed cost as output increases. Diminishing returns effect is the increasing average variable cost as output increases, which results from diminishing marginal product of the variable input. The two effects counteract each other: the former prevails up to output 15, so average total cost falls; the latter prevails once output increases above 15, so average total cost rises.