

Answer on Question #54393, Economics / Economics of Enterprise

Question:

1. The following is a short-run production table for a firm with labor as its only variable input.

Wage = \$ 320

Capital = 110

Capital Price= \$20

Product Price= \$60

Labor Output

0 0

1 50

2 110

3 160

4 200

5 230

6 250

7 260

8 265

9 260

10 250

a. Determine the following measures at all levels of output:

MPL, APL, TFC, TVC, TC, TR, AVC, ATC, AFC, MC, PROFIT

b. At what level of output is the profit maximized?

c. What kind of observations can you make about MC, price, average total cost and profit ?

Solution:

a)  $TFC = 110 \cdot 20$ ,  $TVC = 320 \cdot L$ ,  $AVC = TVC/Q$ ,  $TC = TFC + TVC$ ,  $MC = \Delta TC/\Delta Q$

$MPL = \Delta Q/\Delta L$ ,  $APL = Q/L$ ,  $TR = P \cdot Q$

L	Q	MPL	APL	TFC	TVC	TC	TR	AVC	ATC	AFC	MC	PROFIT
0	0	-	-	2200	0	2200	0	-	-	-	-	-2200
1	50	50	50,0	2200	320	2520	3000	6,4	50,4	44,0	6,4	480
2	110	60	55,0	2200	640	2840	6600	5,8	25,8	20,0	5,3	3760
3	160	50	53,3	2200	960	3160	9600	6,0	19,8	13,8	6,4	6440
4	200	40	50,0	2200	1280	3480	12000	6,4	17,4	11,0	8,0	8520
5	230	30	46,0	2200	1600	3800	13800	7,0	16,5	9,6	10,7	10000
6	250	20	41,7	2200	1920	4120	15000	7,7	16,5	8,8	16,0	10880
7	260	10	37,1	2200	2240	4440	15600	8,6	17,1	8,5	32,0	<b>11160</b>
8	265	5	33,1	2200	2560	4760	15900	9,7	18,0	8,3	64,0	11140
9	260	-5	28,9	2200	2880	5080	15600	11,1	19,5	8,5	-64,0	10520
10	250	-10	25,0	2200	3200	5400	15000	12,8	21,6	8,8	-32,0	9600

b) The profit is maximized, when  $Q = 260$ .

c. Profit is maximized, when  $MR = MC = P$ , price is constant, average total cost is below the price, when the profit is positive.