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HW#11 Due November 24, 2020

3. Consider total cost and total revenue given in the following table:

Quantity	0	1	2	3	4	5	6	7
Total cost	$8	9	10	11	13	19	27	37
Total revenue	$0	8	16	24	32	40	48	56

a. Calculate profit for each quantity. How much should the firm produce to maximize profit?

b. Calculate marginal revenue and marginal cost for each quantity. Graph them. (*Hint*: Put the points between whole numbers. For example, the marginal cost between 2 and 3 should be graphed at $2\frac{1}{2}$.) At what quantity do these curves cross? How does this relate to your answer to part (a)?

c. Can you tell whether this firm is in a competitive industry? If so, can you tell whether the industry is in a long-run equilibrium?

7. A profit-maximizing firm in a competitive market is currently producing 100 units of output. It has average revenue of $10, average total cost of $8, and fixed cost of $200.

a. What is its profit?

b. What is its marginal cost?

c. What is its average variable cost?

d. Is the efficient scale of the firm more than, less than, or exactly 100 units?

i.e. Is AC at its minimum?

(a). Profit = Total Revenue - Total Cost

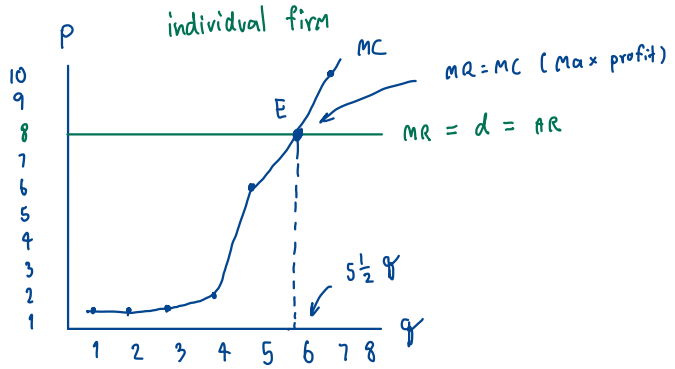
Quantity	0	1	2	3	4	5	6	7
Total cost	$8	9	10	11	13	19	27	37
Total revenue	$0	8	16	24	32	40	48	56
profit	-8	-1	6	13	19	21	21	19

The firm should produce at 6 quantity to maximize profit about 21 $

(b).

Quantity	0	1	2	3	4	5	6	7
Total cost	$8	9	10	11	13	19	27	37
Total revenue	$0	8	16	24	32	40	48	56
MR		8	8	8	8	8	8	8
MC		1	1	1	2	6	8	10

MR = MC



(c). This firm is in the perfect competitive market blc the firm has no influence on the price market. Cost firm is a price taker at 8 $.

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   a. What is its profit?

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   d. Is the efficient scale of the firm more than, less than, or exactly 100 units?

FC = TFC

i.e. Is AC at its minimum ?

AR = 10

AC = 8

TC = 800

TFC = 200

TVC = 600

AFC = 2

AVC = 6

Q = 100

$AFC = \frac{TFC}{Q}$

$= \frac{200}{100}$

$= 2$

$AC = AFC + AVC$

$8 = 2 + AVC$

$AVC = 6$

$AR = \frac{TR}{Q}$

$10 = \frac{TR}{100}$

$TR = 1000$

$TC = TFC + TVC$

$TC = 200 + 600$

$TC = 800$

$AVC = \frac{TVC}{Q}$

$6 = \frac{TVC}{100}$

$600 = TVC$

(a.) Profit = Total Revenue - Total cost

$\Pi = 1000 - 800$

$\Pi = 200\ \$$

(b.) Marginal Cost = producing 0 unit costs 200 \$] 600

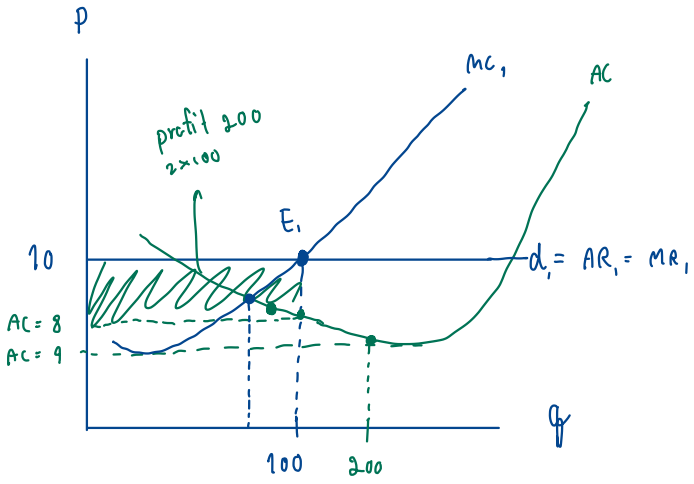
producing 100 unit costs 800 \$

producing 1 unit will cost 6 \$ MC = 6

(c.) Average varieble Cost = $\frac{\text{Total varieble cost}}{Q}$

$AVC = \frac{600}{100}$

$AVC = 6\ \$$



(d.) Is AC at its minimum (אפשרי ?)

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

$AC = \frac{800}{200}$

$AC = 4$

There's no efficient point at MC equals to minimum AC because at 100 units, AC is not the minimum because its minimum can be over 100 units.