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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?

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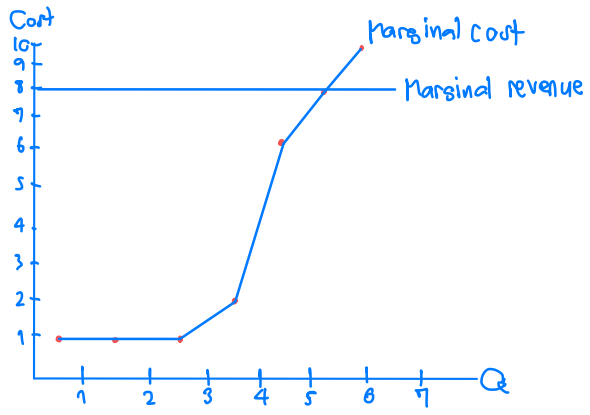
Marginal revenue	8	8	8	8	8	8	8	8
Marginal cost		1	1	1	2	6	8	10

a) The firm produce the maximum profit at $q = 5, 6$ (with a profit of 21)

b)



∴ Marginal cost and Marginal revenue.

∴ The curve cross at a quantity between 5, 6 units

c) The industry is competitive because marginal revenue is the same for each quantity.

The industry is not in long-run equilibrium beause profit is not equal to zero.

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a) $= (10 \times 100) - (8 \times 100) = 200$

Profit = 200

b) In a competitive market, marginal revenue (MR) = average revenue (AR)

According to the profit maximization objective, marginal revenue (MR) = marginal cost (MC). So the marginal cost will be equal to average revenue of $10.

c) average variable cost = variable cost / quantity $= 600/100 = 6$ #

variable cost = total cost − fixed cost

$= (8 \times 100) + (200) = 600$

d) The average total cost is $8. The marginal cost is $10. So ATC is less than MC. So an efficant scale of production will be when the firm produce less than 100 units of output