

MR. Thiem 6704641299

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

- Calculate profit for each quantity. How much should the firm produce to maximize profit?
- 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 \(a\)](#)?
- 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.

- What is its profit?
- What is its marginal cost?
- What is its average variable cost?
- Is the efficient scale of the firm more than, less than, or exactly 100 units?

i.e. Is AC at its minimum?

3.)

Q.	0	1	2	3	4	5	6	7
Revenue	-8	-1	6	13	24	21	21	19

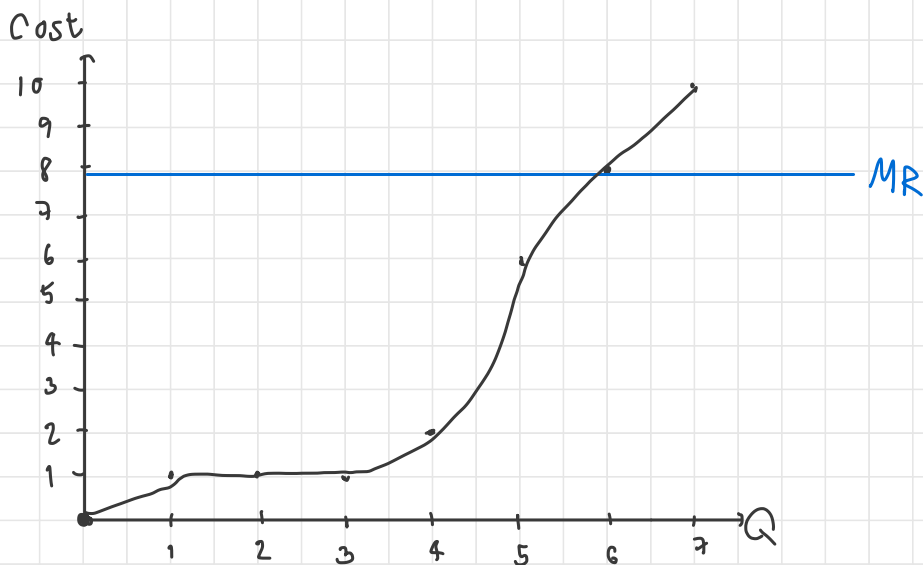
(a.)

Firm must to produce 4 units in order to maximize the profit at 24.

(b.)

$$\text{Marginal cost} = \frac{d}{dQ} (TC) \text{ or } \frac{\Delta TC}{\Delta Q}$$

Q	0	1	2	3	4	5	6	7
MC	0	1	1	1	2	6	8	10
MR	8	8	8	8	8	8	8	8



7.)

$$AR = \frac{TR}{Q} = 10 \quad AC = \frac{TC}{Q} = 8 \quad \text{Fix Cost} = 200$$

a.) Find total revenue and cost

$$10 = \frac{TR}{100} \Rightarrow TR = 1000$$

$$8 = \frac{TC}{1000} \Rightarrow TC = 800$$

$$\text{Total Profit} = 1000 - 800 = 200$$

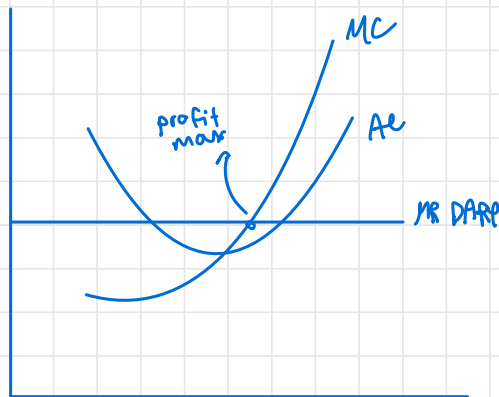
b.) What is the MC?

$$MR = MC$$

c.) AC at minimum when $AC = MC$

$$AC = 6 \quad \text{and} \quad MC = 10$$

so $MC > AC$, which means it is not efficient at 100 units but it will be if scale is produced less than 100



Profit maximize occurs when $MR = MC$