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
Profit	-8	-1	6	13	19	21	21	19

a. Calculate profit for each quantity. How much should the firm produce to maximize profit? → 5,6

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? 200

b. What is its marginal cost? 6

c. What is its average variable cost? $\frac{600}{100} = 6$

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

produce 0 → costs 200 $] 600 $
produce 100 → costs 800 $
produce 1 → costs $\frac{600}{100} = 6$ $

$\frac{200+6x}{x}$

i.e. Is AC at its minimum?

$\frac{TC}{Q} = \frac{800}{100} = 8$

increase in Q (150) = $\frac{200+150(6)}{150} = 7.3$

It isn't efficient scale because when produce more cost is less than 100

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

$TR = 100 \times 10 = 1000$

$\frac{TC}{Q} = 8$

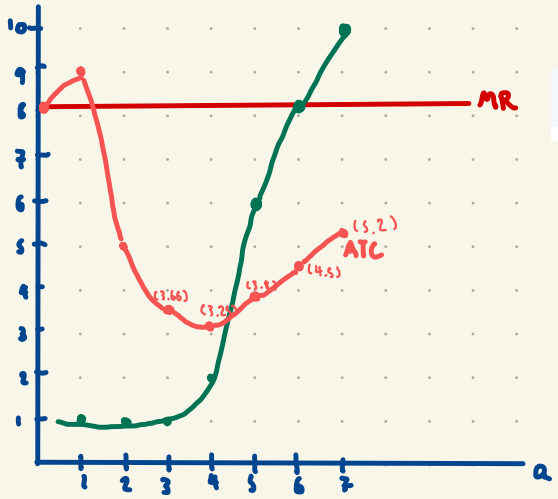
$TC = 100 \times 8 = 800$ (Q x AC)

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
MC:	0	1	1	1	2	6	8	10
MR:	0	8	8	8	8	8	8	8

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 1/2.) At what quantity do these curves cross? How does this relate to your answer to part (a)?

6

when marginal revenue equal marginal cost, it is maximum profit



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?

This firm is in perfect competitive market because MR is equal every point

yes because price is more than average total cost