

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		-1	6	13	19	21	21	19

- a. Calculate profit for each quantity. How much should the firm produce to maximize profit? $\rightarrow 5, 6$
- 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?

i.e. Is AC at its minimum?

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

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

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

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

$$TR = 100 \times 10 = 1000$$

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

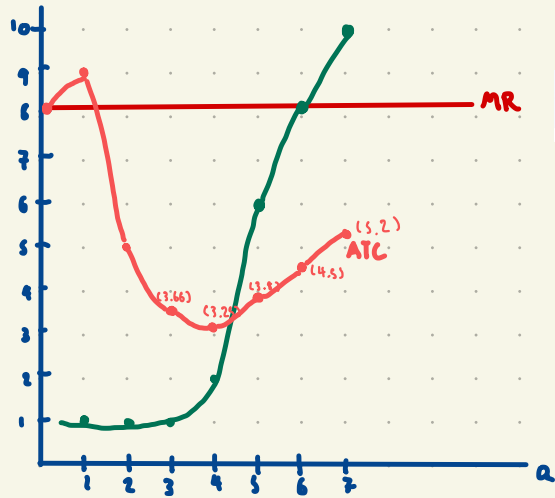
$$TC = 100 \times 8 = 800$$

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 $2\frac{1}{2}$.) 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