

28
27
21
9
5
3
9
19

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?

$$a \quad \pi(Q) = TR(Q) - TC(Q)$$

$$1. \quad 1 - 8 = -7$$

$$4. \quad 32 - 13 = 19$$

$$2. \quad 56 - 37 = 19$$

$$2. \quad 11 - 10 = 1$$

$$5. \quad 40 - 19 = 21$$

$$3. \quad 24 - 11 = 13$$

$$6. \quad 48 - 27 = 21$$

b. at quantity 4 & 5 the curves cross

because they have the same max profit.

$$9 - 8$$

$$10 - 10$$

$$11 - 24$$

$$19 - 32$$

$$19 - 40$$

$$27 - 48$$

$$8.5$$

$$13$$

$$17.5$$

$$22.5$$

$$29.5$$

$$37.5$$

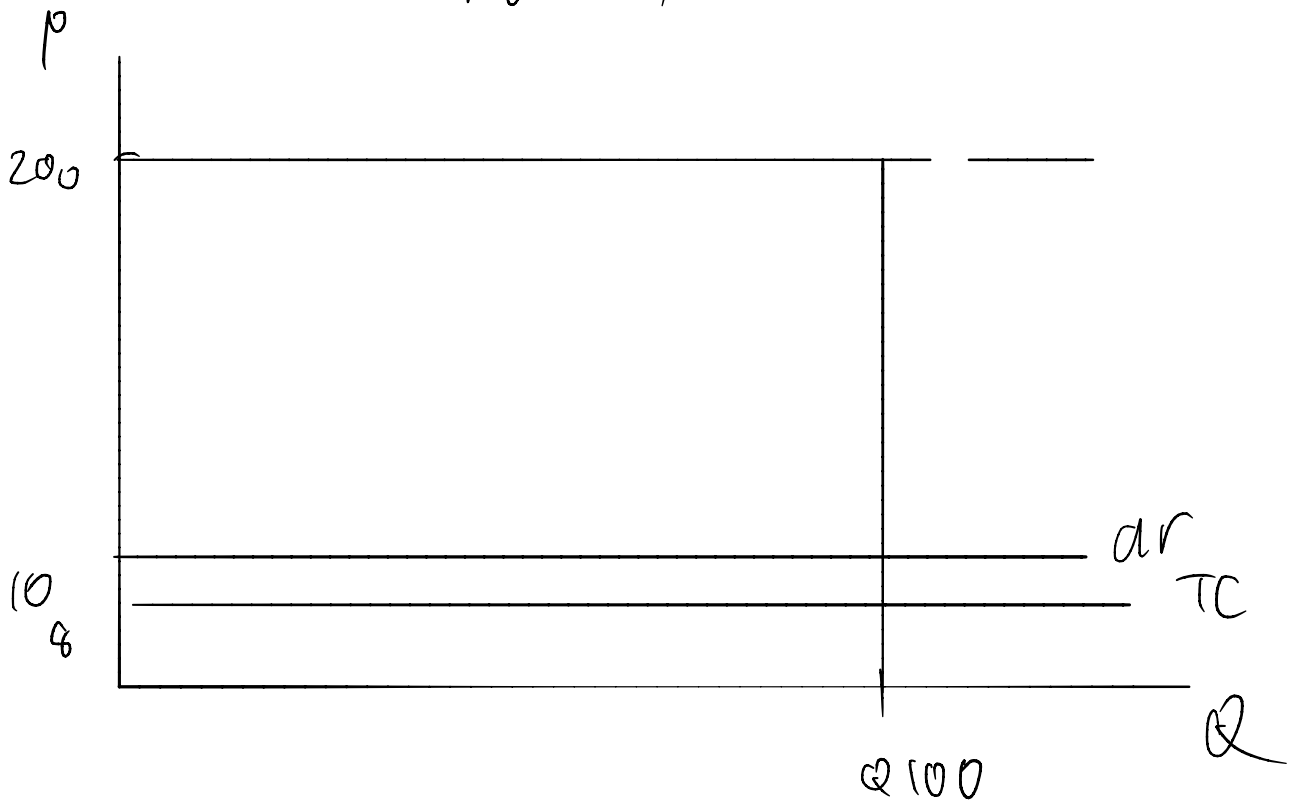
c. the firm is in a competitive industry because it has maximum AC and it is in the long-run equilibrium

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? $19,200$ $8 = 2 + AVC$
- b. What is its marginal cost? 200
- c. What is its average variable cost? 6 $6 = AVC$
- d. Is the efficient scale of the firm more than, less than, or exactly 100 units?

i.e. Is AC at its minimum?
more than.



$$\begin{aligned} a \quad \pi &= Tr(Q) - TC(Q) \\ &= 20000 - 800 \\ &= 19,200 \end{aligned}$$

$$b \quad MC = \frac{TC}{Q}$$

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