

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

- ~~2.~~ Calculate profit for each quantity. How much should the firm produce to maximize profit? When $MR = MC$
~~3.~~ 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)?
~~4.~~ 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? yes

find ATC

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?

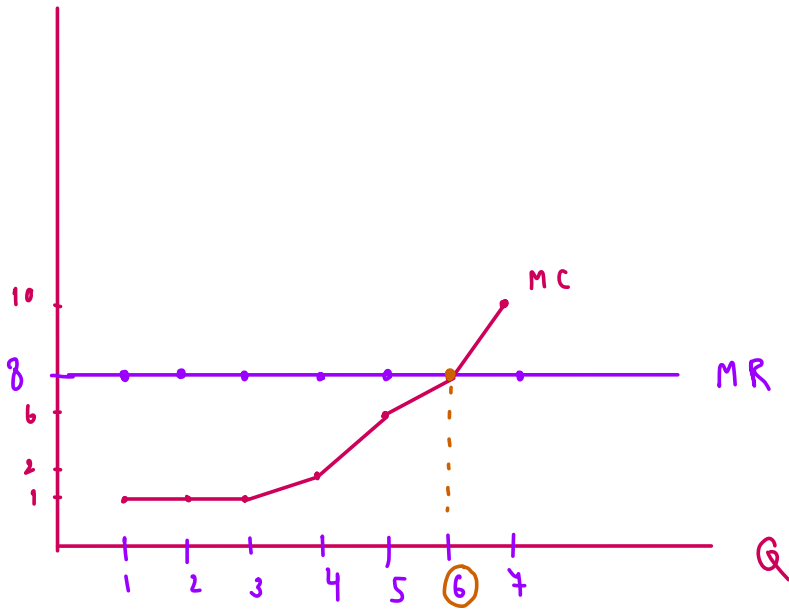
i.e. Is AC at its minimum?

3) a.

Q	TC	TR	$(\frac{\Delta TR}{\Delta Q})$ MR	$(\frac{\Delta TC}{\Delta Q})$ MC	(MR - MC) marginal profit	$(\frac{TC}{Q})$ ATC
0	8	0	-	-	-	-
1	9	8	8	1	7	9
2	10	16	8	1	7	5
3	11	24	8	1	7	3.66
4	13	32	8	2	6	3.25
5	19	40	8	6	2	3.8
6	27	48	8	8	0	4.5
7	37	56	8	10	-2	5.2

Ans : The firm should produce 6 to maximize profit.

b.) MR MC

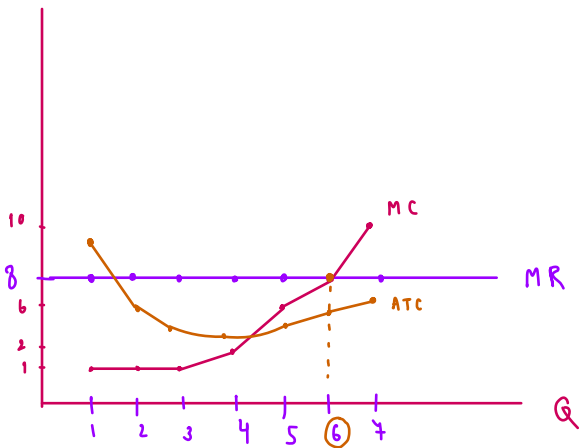


$\therefore$ it is same at 6 is max profit.

c.) This firm is a price taker

$$\therefore MR = 8 = P$$

MR MC



$$\text{at } Q = 6 ; TR = 48$$

$$TC = 27$$

$$\therefore \text{Profit} = 21$$

$\therefore$ It is short run equilibrium.

$$7.) \ 2) \ \Pi (\text{profit}) = TR - TC$$

$$\begin{aligned} \Pi (\text{profit}) &= P \cdot q - ATC \cdot q \\ &= 10 \cdot (100) - 8 \cdot 100 \end{aligned}$$

$$= 200$$

$$b.) \ MC = MR = 10$$

$$c.) \ VC = AVC \cdot q$$

$$AVC = ATC - AFC$$

$$AVC = ATC - \frac{FC}{q}$$

$$AVC = 8 - \frac{200}{100} = 6$$

$$VC = 6 \cdot 100$$

$$VC = 600$$

d.)

