Microeconomics for Public Policy I
Fall 2026

Problem Set 9

On what and how to submit

- For this and all future problem sets, questions are from the "Problems" section of the questions at the end of the chapter.
- Due before Lecture 10 to Blackboard. See assignment turn-in on course home page.
- Submit a pdf file
- Name the file "ps09_[lastname].pdf". For example, my file would be "ps09_brooks.pdf".
- In addition, write your name at the top of the problem set.
- You do not need to type your submission. Any **legible** submission is ok. For example, you can write the problem set with hand-drawn graphs, take a picture, and submit the picture as a pdf.

1. GLS Chapter 8, Question 3

(a)

Q	TR	FC	VC	TC	profit	MR	MC
0	0	15	0	15	-15	.	.
1	50	15	30	45	5	50	30
2	100	15	65	80	20	50	35
3	150	15	107	122	28	50	42
4	200	15	157	172	28	50	50
5	250	15	217	232	18	50	60
6	300	15	289	304	-4	50	72

(b) maximizing total revenue: produce 6

(c) quantity of beeswax to maximize profits: 4

(d) MR and MC at profit maximizing output? they are equal

(e) if fixed cost increases to \$30: optimal unchanged in the short run – no change to marginal costs

(f) if marginal cost increases by \$8/unit of output? production should decline, since the firm should set $MR = MC$, and MC just increased for each additional unit.

2. GLS Chapter 8, Question 6

(a) Bennet should set $P = MC$, or $900 = 9Q^2$. This implies $Q^2 = 100$, or $Q = \sqrt{100} = 10$.

(b) Profit is $\pi = TR - TC = 900 * 10 - 3 * (10)^3 = 9000 - 3000 = 6000$

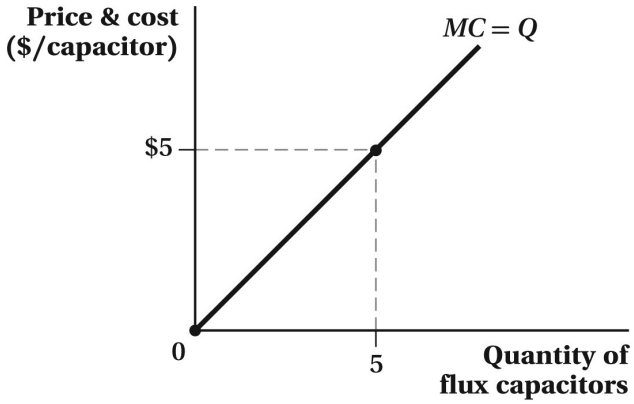
(c) Changing what he sells:

- If he sells one fewer unit, $\pi = TR - TC = 900 * 9 - 3 * (9)^3 = 8100 - 2187 = 5913$ – less than $Q = 10$!
- If he sells one more unit, $\pi = TR - TC = 900 * 11 - 3 * (11)^3 = 9900 - 3993 = 5907$ – less than $Q = 10$!

He won't do better with either of these.

3. GLS Chapter 8, Question 11

(a)



(b) profit-maximizing quantity

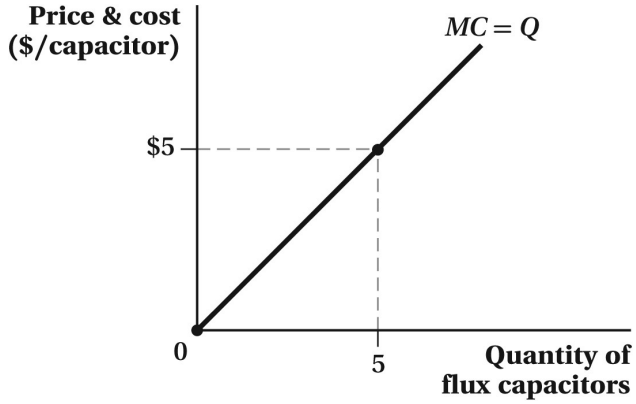
Marty maximizes profits where $P = MC$. Because Marty produces in a perfectly competitive environment, $P = MR$. If capacitors sell for \$2, then $P = MR = 2$, and Marty maximizes profits where $2 = MC$, or where he produces 2 units (see figure above).

(c) profit maximizing quantity at P of 3, 4, and 5

A similar logic chain gives us profit maximizing output at 3, 4 and 5 for prices 3, 4, and 5 respectively.

(d) supply curve

The supply curve is MC, where $MR \geq MC$.



(e) compare the two diagrams

They are the same!