

ECON 107

Quiz 8

This quiz will last 10 minutes.

1. (3 points) **Honor Statement:** Please read and sign the following statement:

I promise that my answers to this test are based on my own work without reference to any notes, books, or the assistance of any other person. I will also neither help others nor use a calculator or other electronic aid for calculation.

Name and Surname: _____

Student ID: _____

Signature: _____

a	b	c	Q^m	P^m	P^e	Q^e	DWL
25	2	5	5	15	5	10	25
27	2	3	6	15	3	12	36
32	2	4	7	18	4	14	49
19	1	3	8	11	3	16	32

2. (8 points total) A monopolist has an inverse demand curve of $P = a - bQ$ and a cost function $C(Q) = cQ$. This means their marginal revenue is $P = a - 2bQ$ and their marginal cost is c .

- (a) (4 points) What is their profit maximizing quantity and price?

Solution 1 To find this you set the marginal revenue equal to the marginal cost:

$$\begin{aligned} a - 2bQ &= c \\ a - c &= 2bQ \\ Q^m &= \frac{1}{2} \frac{a - c}{b} \end{aligned}$$

and then the price is set to clear the market.

$$\begin{aligned} P^m &= a - bQ^m = a - b \left(\frac{1}{2} \frac{a - c}{b} \right) \\ &= \frac{1}{2}a + \frac{1}{2}c \end{aligned}$$

the values for each version of the quiz are above.

- (b) (3 points) What is the Pareto efficient price and quantity?

Solution 2 The pareto efficient price is marginal cost or $P^e = c$, thus the efficient quantity is:

$$\begin{aligned}c &= a - bQ \\ Q &= \frac{a - c}{b}\end{aligned}$$

(c) (1 points) Find the deadweightloss in this market.

Solution 3 This is quite simple:

$$\begin{aligned}DWL &= \frac{1}{2} (P^m - P^e) (Q^e - Q^m) \\ &= \frac{1}{2} \left(\frac{1}{2}a + \frac{1}{2}c - c \right) \left(\frac{a - c}{b} - \frac{1}{2} \frac{a - c}{b} \right) \\ &= \frac{1}{2} \left(\frac{1}{2}a - \frac{1}{2}c \right) \frac{1}{2b} (a - c) \\ &= \frac{1}{8b} (a - c)^2\end{aligned}$$

3. (6 points) What is a sunk cost? What is the sunk cost fallacy?

Solution 4 A sunk cost is a non-recoverable cost. I.e. it is a cost that you can never get back after you have paid it.

The sunk cost fallacy is paying attention to sunk costs when making decisions.

4. (3 points) Standard feedback questions:

(a) Out of ten, my level of comprehension of the material covered this week is:

(b) My favorite topic of the week was:

(c) The topic I understood the least this week was: