

First Exam

Write all answers in your blue book and show all work there. Return your exam in your blue book.

12 pts.

1) Suppose that $TC = 4000 + 2000Q$ and that $Q_D = 7000 - P$,

- a) Find the profit maximizing P and Q .
- b) Now suppose that there is an alternative production method where $TC = 1000 + 4000Q$. Would you prefer the alternative? Show work.

13 pts

2) Suppose that $\ln Q = 10 - 2\ln P$

- a) Find the price elasticity of demand. Show work.
- b) Find dQ/dP and use it to sketch a demand curve.
- c) Add a MR curve to the diagram. Show work.

13 pts.

- 3) a) Suppose that $P = f(Q)$, use the product rule to derive an expression for MR..
- b) Now suppose that you know that $P = 10/Q^{1/3}$. Use this with part a to get an expression for MR.

12 pts.

- 4) Use a spreadsheet and the solver to do part 1a. When you are ready to print it, type your name into it and print it two ways: once in the ordinary way and once showing the formulas, which is done by hitting ctrl and ~, (below the esc key). Ask for help if necessary.

18 pts

- 5) a) Draw an isoelastic increase in demand.
- b) Show why it is called isoelastic.
- c) Suggest a cause for such an increase in demand.
- d) If MC is constant and demand increases like this, what happens to the profit maximizing P ?

7 pts.

6) If $P = 10$, $MC = 4$ and $e = -3$, is profit maximized? Why?

12pts.

7) If all consumers have the same demand at $P = 20 - 4Q$ and $MC = 5$ and 2 part pricing is used, what are the profit maximizing prices?

13 pts.

8) If $P_A = 40 - Q_A/10$ and $P_B = 10 - Q_B/40$ and $VC = 2(Q_A + Q_B) + ((Q_A + Q_B)^2)/400$

a) Use the solver to find profit maximizing prices and quantities.

b) If there is no way to separate the markets, how does this affect the answer in part a?

c) Use the solver to find the answer for part b.

When you are ready to print, type your name and print it two ways: once in the ordinary way and once showing the formulas, which done by hitting ctrl and ~ , (below the esc key). Ask for help if necessary.

I have neither given nor received unfair aid on this test nor am I aware of anyone else who has.
