Dr. Barry Haworth
University of Louisville
Department of Economics
Economics 201
Spring 2026

Homework #4 (due by 9:00pm on Friday, March 27)

Please submit your answers to this homework through the Assignment link at Blackboard. ***No credit will be given for answers submitted in class or emailed to the professor****, regardless of the excuse.* This includes unique excuses like my dog ate my homework, as well as more traditional excuses like "I lost my Internet". Please note that all submissions are final, again – regardless of the excuse (which includes "I accidentally hit the submit button") and that if you do not correctly submit your work, then you will not receive credit. I.e., Blackboard has a Save button and a Save and Submit button, and you must use the Save and Submit button to submit your answers. If you are unfamiliar with Blackboard, then it would be a good idea to visit the class page at Blackboard and check out the homework assignments as they are posted.

Please note that when Blackboard grades homework answers, more specifically – answers to the fill-in-the-blank questions – your answer must match exactly with the answer that Blackboard is looking for. Below, you'll find some instructions on how to properly format these answers. A more complete discussion of these rules is provided at Blackboard. Reading this section is strongly recommended.

Formatting matters with the answers in these questions. For this reason, **understand that your answer can be technically correct but graded as wrong because you didn't follow the directions provided below.** Given that formatting is considered part of your answer, a wrongly formatted answer is still a wrong answer. I.e., you will not have points added to your homework score if you got answers wrong due to formatting mistakes. However, this is still something you will want to bring to Professor Haworth's attention. *In addition, if you are not sure how to round an answer (e.g. whether 3.25 rounds to 3.2 or 3.3), then please contact your professor to get your questions answered.*

Homework Questions 1, 2 and 4

(a) ***On Question #1a, 2a, 4a and 4b****, please express your answer as a whole number (i.e. rounded to the nearest whole number). E.g., if you calculate 30.3 for your answer to one of these questions, then you should express that answer as 30.*

(b) ***On Questions #1b, 1c, 2b, 2c, and 4c****, please express your answer as a whole number, with or without the dollar sign, and with or without a comma. E.g., if your answer is $3000.20, then you may express that answer as $3000, $3,000, 3000 or 3,000, but not $3000.20 or 3000.20.*

(c) ***On Question #1c, 2c, and 4c****, please express any negative answer with the negative sign in front of the dollar sign. Do not put a space between the negative sign and dollar sign, or put the negative sign between the $ and the number itself. E.g., if you calculate an answer of -30 to one of these questions, then you may express that answer as -$30 or -30, but not $-30 or - 30.*

Homework #4 Questions: *note the formatting instructions for Questions #1-2 and 4.*

1. Assume that Firm A operates as a profit maximizing monopolist that produces and sells apples, and that this firm has the following Demand, Marginal Revenue, total cost and marginal cost curve equations below (where P = Price, Q = Quantity).

Demand:	P = 500 - 10Q
Marginal Revenue:	MR = 500 - 20Q
Total Cost:	AC = 100Q
Marginal Cost:	MC = 100

Assume that Firm A sells all apples for the same price (i.e. linear pricing).

a. In order to earn maximum profit, Firm A should produce _____ units of output

b. In order to earn maximum profit, Firm A should set a price of _____

c. The greatest possible profit that Firm A can earn would be equal to _____

2. Assume that profit maximizing monopoly Firm B sells widgets. The equations below provide demand and cost-related information associated with selling this good:

Demand:	P = 600 - Q
Marginal Revenue:	MR = 600 - 2Q
Total Cost:	$AC = 200 + \frac{100}{Q}$
Marginal Cost:	MC = 200

Assume that Firm B sells all widgets for the same price (i.e. linear pricing).

a. In order to earn maximum profit, Firm B should produce _____ units of output

b. In order to earn maximum profit, Firm B should set a price of _____

c. The greatest possible profit that Firm B can earn would be equal to _____

3. Consider Firm A from question #1 and Firm B from question #2. Given what you know about these firms, which of the following is a true statement:

(a) Firm A is a natural monopoly and Firm B is a natural monopoly

(b) Firm A is a natural monopoly, but Firm B is not a natural monopoly

(c) Firm B is a natural monopoly, but Firm A is not a natural monopoly

(d) Firm A is not a natural monopoly and Firm B is not a natural monopoly

4. Assume that a monopolist faces the following equations for demand, marginal revenue, average cost and marginal cost *(note that we're using AC instead of TC below)* when selling good X.

Demand:	P = 1000 - 2Q
Marginal Revenue:	MR = 1000 - 4Q
Average Cost:	AC = 200
Marginal Cost:	MC = 200

Now, assume that this firm chooses to engage in price discrimination, and considers setting 2 different prices. One price for Group 1, a group of consumers who prefer to buy good X on weekdays, and another price for Group 2, a group of consumers who prefer to buy good X on weekends. These prices are provided below:

- the weekday price for consumers in Group 1 is $500
- the weekend price for consumers in Group 2 is $400

Assume that consumers fit into one or the other of these two groups, based on their willingness to pay for good X. Assume further that the firm can successfully engage in a pricing strategy of price discrimination. If the firm pursues this pricing strategy, answer the following:

a. The firm will sell _____ units of output to Group 1 (the group facing P = $500)

b. The firm will sell _____ units of output to Group 2 (the group facing P = $400)

c. With this approach, the firm will earn overall profit equal to _____
(note that overall profit is the sum of profit earned from Group 1 and Group 2)

5. Assume that a monopolist faces the following equations for demand, marginal revenue, average cost and marginal cost *(note that we're using AC instead of TC below)* when selling good X.

Demand:	P = 800 - 2Q
Marginal Revenue:	MR = 800 - 4Q
Average Cost:	AC = 400
Marginal Cost:	MC = 400

Assume that this firm plans to use a two part tariff and that the firm is able to set a membership fee capable of earning all potential fixed fee revenue. If so, then which of the following prices allows the firm to earn greatest possible overall profit from this pricing strategy:

a. the firm will sell each unit at a price of $300
b. the firm will sell each unit at a price of $400
c. the firm will sell each unit at a price of $500
d. the firm will sell each unit at a price of $600
e. the firm will sell each unit at a price of $700

6. Which of the following is a true statement about monopoly firms:
a. monopoly firms have a marginal revenue curve that is also the firm's demand curve
b. monopoly firms earn marginal revenue that is always equal to their price
c. the monopolist's negatively sloped demand curve implies that this firm is a price setter
d. the monopolist's negatively sloped demand curve implies that this firm will always earn positive economic profit (i.e. Profit > 0)
e. no monopoly firm will never earn economic profit that is equal to zero
f. answers a and b are both correct
g. answers c and d are both correct
h. answers c and e are both correct

7. Which of the following is the best example of a two part tariff:
a. when consumers must pay an admission fee at the door, and then pay for each unit they buy
b. when consumers make installment payments on a good (i.e. pay a set amount each month until the good is completely paid off, including any interest that has accrued)
c. when consumers pay a set price for a good and then also pay the good's delivery cost
d. when consumers pay a lower price before a certain time of day, and a higher price after that time of day
e. when consumers must pay a deposit for a good, and then the remainder of the price later on

Question #8 can be answered after reading the article "Should the US eliminate entry barriers to the practice of law?". When you go to the Course Content section of Blackboard and click on the Homework #4 folder, you'll see this article posted there. Read the article and then answer the question.

8. Select each statement below that represents a statement made by the article (i.e. select **every** true statement that is a point made within the article about eliminating entry barriers – this may involve selecting every statement, just one statement, two statements, etc.):

a. State licensing requirements and American Bar Association (ABA) regulations serve as entry barriers which limit the supply of lawyers

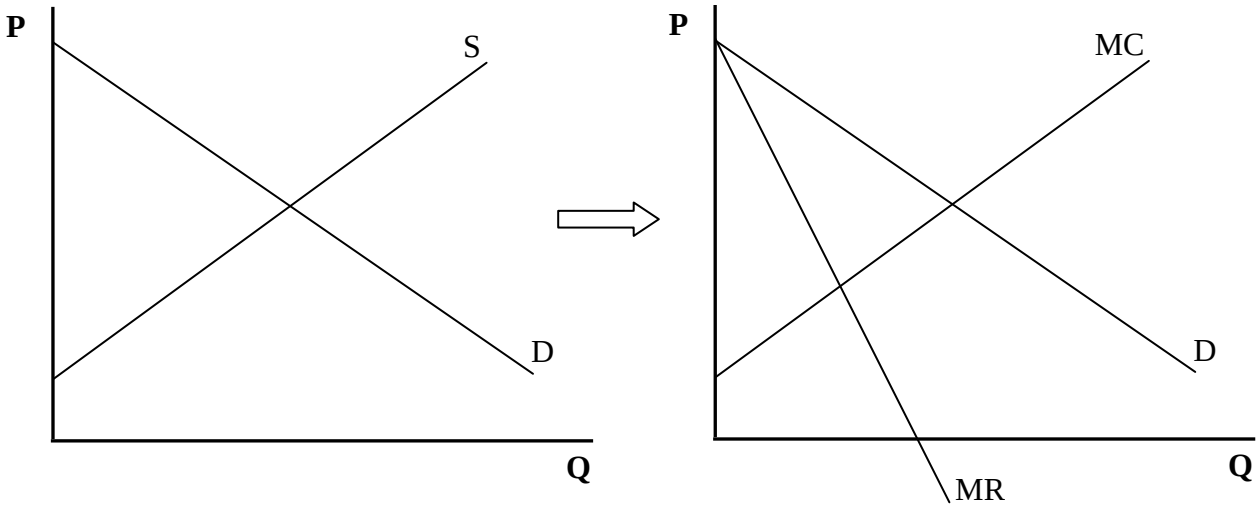
b. Entry deregulation in network industries spurred innovations in market, operations, and technology that improved firms' efficiency, service quality, etc.

c. Benefits from entry deregulation in certain industries extend beyond the industries that were deregulated

d. Entry deregulation should be expected to increase most lawyers' earnings premiums

e. There are valid reasons to expect that entry deregulation would eliminate the inefficiencies in firms' operations

9. Assume that all the firms in a Perfectly Competitive market are consolidated into one monopoly firm. I.e., assume that a perfectly competitive market transforms into a monopoly market without any change in cost. This change is depicted in the graphs below, where the market starts out as the Perfectly Competitive Market graph on the left and after consolidating, becomes the Monopoly Market graph on the right (note that S becomes MC and that the demand curves are identical).



If consolidation happens, then which of the following statements would be a correct statement about this market's transition from perfect competition to monopoly:

a. this consolidation would decrease the amount of consumer surplus in the market

b. this consolidation would reduce the consumer surplus in this market to zero

c. this consolidation would increase the consumer surplus in the market

d. this consolidation would decrease the amount of deadweight loss in the market

e. this consolidation would reduce the deadweight loss in this market to zero

f. this consolidation would increase the deadweight loss in the market

g. answers a and e are both correct

h. answers b and e are both correct

i. answers c and d are both correct

j. answers a and f are both correct