Principles of Microeconomics Materials

Florida State University

Colin Adams

Summer 2025

Contents

Prologue

This collection contains all materials from my first course, *Principles of Microeconomics*, including the syllabus, over 500 practice problems, quizzes, and exams. Practice problems were distributed as related material was taught. Lecture notes are excluded because they were not shared outside the classroom, and Core FSU assignments are omitted as they were provided by the university. Quizzes were given roughly twice a week, except during exam weeks, and have been renumbered from the six-week course for clarity. Answers are provided for all problems except quizzes, as some quiz questions may be reused.

I am grateful to Dr. Joe Calhoun, Dr. Michael Hammock, Dr. Brent Evans, Scooter Natoli-Henry, Patrick Tydir, and Zachary Gooch for their guidance in preparing me to teach my first course. I am especially thankful to the students in the class, whose excitement, thoughtful questions, and constructive feedback not only pushed me to become a better teacher but also made the course a joy to teach.

Last updated: August 21, 2025

ECO 2023: Principles of Microeconomics

Colin Adams

Summer A, 2025

Course Information

Time:	MoTuWeThFr 1:20PM-2:35PM
Location:	HCB 0313
Prerequisites:	None
Credit Hours:	3 hours

Instructor Information

Instructor of Record:	Colin Adams
Email:	ca23a@fsu.edu
Office Hours:	Tu, We, Th at 11:00AM-12:00PM, or by appointment
Office:	Bellamy 291B (by the kitchen)

Course Description

Economics is the study of how people make choices in the face of scarce resources. This course focuses on the market system as a framework for understanding economic decisions. We will examine how individuals and small groups make choices within markets and how these decisions influence the allocation of resources. We will also study the effects of government policies on market outcomes.

Textbook(s) and Other Resources

Required

- Gwartney, J. D., Stroup, R. L., Sobel, R. S., & Macpherson, D. A. (2022). *Microeconomics: Private and Public Choice* (17th ed.). Cengage Learning.

Recommended

- Arnold, R. A. (2011). *Economics* (10th ed.). South-Western College Pub.
- freefinancebook.com

Other Resources

- Practice materials posted on Canvas
- Brent Evans on YouTube
- Economics Crash Course on YouTube
- Jacob Clifford (Formerly ACDC Econ) on YouTube
- Khan Academy's Website or YouTube

Learning Objectives

By the end of this course, students should be able to:

- Define and identify in context important economic concepts such as opportunity cost, comparative advantage, market equilibrium, efficiency, elasticity, and externality.
- Identify the equilibrium of the supply and demand model and show how economic changes affect the equilibrium.
- Explain the impact price controls, taxes, and subsidies have on a market.
- State the major sources of inefficiency in a market.
- Distinguish among the four major types of industrial market structures.

Moreover, as a Core FSU Social Sciences Course, students will also meet the goals of Social Sciences competencies:

- Discuss the role of social or historical factors in contemporary problems or personal experiences.
- Analyze claims about social or historical phenomenon.

Grading

Final grades will be based on two exams (a midterm and a final), quizzes primarily administered through Canvas, and the Core FSU assignments.

Grading Breakdown

Assignment	Percent of Total Grade	Date
Midterm	25	5/30/2025
Final	25	6/20/2025
Quizzes	40	Bi-weekly
Core FSU Assignments	10	6/5/2025

Grading Scale

Letter grade	Percent
A	92.5 - 100
A-	89.5 - 92.4
B+	86.5 - 89.4
B	82.5 - 86.4
B-	79.5 - 82.5
C+	76.5 - 79.4
C	72.5 - 76.4
C-	69.5 - 72.4
D+	66.5 - 69.4
D	62.5 - 66.4
D-	59.5 - 62.4
F	0 - 59.4

Exams

There will be two exams in this course, namely a midterm and (cumulative) final. Each exam is worth 25% of the final grade and will take place during regular class time. Exams are based on content covered both in readings and lectures.

Exam Policies

- No use of electronic devices is allowed during exams. If a student uses any device (cell phone, smart watch, headphones, etc.) during an exam, they will automatically receive a zero on that exam.
- The use of any calculator not provided by the instructor is not allowed. The instructor will provide calculators for all students to use on exam days.
- All exams will take place in our regular classroom and at regular class times. Each will be closed book with no notes allowed.
- No student is allowed to begin their exam once a single student has finished and handed their exam in for submission.

Makeup Exam Policy

Makeup exams will only be permitted if you provide an official excuse from Case Management Services, which addresses prolonged illnesses, deaths of friends or family members, or other significant circumstances. If approved, makeup exams must be scheduled directly with me and completed within one week of the midterm.
Should you miss the midterm, have an official excuse from Case Management, and are unable to complete a makeup exam, the midterm's weight will automatically transfer to the final exam, increasing its weight to 50% of your overall course grade. Students may choose not to take the midterm and shift the weight from the midterm to the final if they notify the instructor (by email) by 11:59pm on the Friday of the first week of class. Students who miss the midterm or final without an official excuse from Case Management (and didn't notify the instructor about missing the midterm during the first week of class) will earn a zero on said exam.
As for the final exam, according to FSU policy, the following are the only valid reasons for requesting a makeup: (1) Three or more final exams within a 24-hour period around our exam; (2) Another exam scheduled at the same time as our exam; (3) A documented medical emergency; (4) Some other documented extraordinary event. If one of these applies to you, you must see me as soon as possible to schedule another time to take the exam.
However, clear and prompt communication is crucial. Should unexpected or emergency situations arise, contacting me immediately will enable us to collaboratively identify suitable solutions.

Quizzes

This course will have (roughly) semi-weekly quizzes beginning in the second week of the semester. These quizzes will be administered through Canvas (except for Quiz 9), and will be posted at least two days before the due date and are due by 11:59pm of the date shown on the schedule. Students are allowed three attempts on quizzes, of which only their highest score will count. Quizzes will primarily cover recent material, though they may include any content discussed in lectures or the textbook up to that point. Of the ten quizzes, only the quizzes with the highest eight grades will count towards a student's final grade.
Quizzes will not be eligible for makeup unless documented evidence confirms you were physically unable to complete them for the entire period they were available. Situations such as becoming ill or encountering extraordinary events within 24 hours of an assignment's due date will not qualify for makeup consideration if sufficient time (e.g., several days) was available earlier in the submission period. Additionally, technical issues, such as internet outages or malfunctioning devices, are not valid reasons for requesting or receiving a makeup.

Extra Credit

In an effort to be equal to all students, no extra credit will be given under any circumstances nor will grades be rounded beyond the 0.5 threshold specified in the grading scale. For example, a score of 89.49 will earn a B+ whereas a 89.50 will earn an A-.

Schedule

Below is a rough outline of the order in which we will cover topics. Each chapter is in reference to the Gwartney, Stroup, Sobel, and Macpherson Microeconomics textbook.

Outline of Semester Schedule

Date	Content Covered	Quiz or Test (if applicable)
May 12	Syllabus + Ch 1	
May 13	Ch 1 + 2	
May 14	Ch 2	
May 15	Ch 2 + 3	
May 16	Ch 3	
May 19	Ch 3	Quiz 1 Due
May 20	Ch 3	
May 21	Ch 7	Quiz 2 Due
May 22	Ch 7 + 4	
May 23	Ch 4	Quiz 3 Due
May 26	No Class	
May 27	Ch 4	
May 28	Ch 5	Quiz 4 Due
May 29	Ch 5	
May 30	None	Midterm
June 2	Ch 8	
June 3	Ch 8	
June 4	Ch 8 + 9	Quiz 5 Due
June 5	Ch 9	Core FSU Due
June 6	Ch 9	Quiz 6 Due
June 9	Ch 11	
June 10	Ch 11	
June 11	Ch 11	Quiz 7 Due
June 12	Ch 10	
June 13	Ch 10	Quiz 8 Due
June 16	Ch 13 + 15	
June 17	Stock Market	
June 18	Stock Market	Quiz 9 (in class)
June 19	No Class	Quiz 10 Due
June 20	None	Final

University Policies

University Attendance Policy
Excused absences include documented illness, deaths in the family, and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid written excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy
The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of student's academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to ". . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/academic-resources/academic-integrity-and-grievances/academic-honor-policy)

Americans With Disabilities Act
Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodation for all persons with disabilities in a manner that is consistent with the academic standards of the course while empowering the student to meet the integral requirements of the course. Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Office of Accessibility Services; and (2) request a letter from the Office of Accessibility Services to be sent to the instructor indicating the need for accommodation and what type; and (3) meet (in person, via phone, email, skype, zoom, etc...) with each instructor to whom a letter of accommodation was sent to review approved accommodations. Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services has been provided. This syllabus and other class materials are available in an alternative format upon request. For the latest version of this statement and more information about services available to FSU students with disabilities, contact the:

Office of Accessibility Services
874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
oas@fsu.edu
https://dsst.fsu.edu/oas

Academic Success
Your academic success is a top priority for Florida State University. University resources to help you succeed include tutoring centers, computer labs, counseling and health services, and services for designated groups, such as veterans and students with disabilities. The following information is not exhaustive, so please check with your advisor or the Department of Student Support and Transitions to learn more.

Confidential Campus Resources
Various centers and programs are available to assist students with navigating stressors that might impact academic success. These include the following:

Victim Advocate Program
University Center A, Rm. 4100
(850) 644-7161
Available 24/7/365
Office Hours: M-F 8-5
https://dsst.fsu.edu/vap

Counseling and Psychological Services (CAPS) Florida State University's Counseling and Psychological Services (CAPS) primary mission is to address psychological needs and personal concerns, which may interfere with students' academic progress, social development, and emotional well-being. The following in-person and virtual (tele-mental health) services are available to all enrolled students residing in the state of Florida:

1. Individual therapy
2. Group therapy
3. Crisis Intervention
4. Psychoeducational and outreach programming
5. After hours crisis-hotline
6. Access to community providers for specialized treatment

Call 850-644-TALK (8255) for more information on how to initiate services.

Counseling and Psychological Services
250 Askew Student Life Center
942 Learning Way
(850) 644-TALK (8255)
Walk-in and Appointment Hours:
M-F 8 am – 4 pm
https://counseling.fsu.edu/

Services at UHS are available to all enrolled students residing in Florida: The mission of University Health Services (UHS) is to promote and improve the overall health and well-being of FSU students. UHS provides a coordinated continuum of care through prevention, intervention, and treatment. Services include general medical care, priority care, gynecological services, physicals, allergy injection clinic, immunizations, diagnostic imaging, physical therapy, and a medical response unit. The Center for Health Advocacy and Wellness (CHAW) assists students in their academic success through individual, group, and population-based health and wellness initiatives. Topics include wellness, alcohol and other drugs, hazing prevention, nutrition and body image, sexual health, and power based personal violence prevention. For more information, go to uhs.fsu.edu.

University Health Services
Health and Wellness Center
960 Learning Way
Tallahassee, FL 32306
Hours: M-F, 8 am – 4 pm
(850) 644-6230
https://uhs.fsu.edu/

Free Tutoring from FSU
On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of on-campus tutoring options –see https://ace.fsu.edu/tutoring or contact tutor@fsu.edu. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

Statement for Classes Subject to HB233 Recording
In this class, consistent with state law and university policy, students are permitted to make recordings of class lectures for personal use only. As noted, sharing, posting, or publishing classroom recordings may subject you to honor code violations and legal penalties associated with theft of intellectual property and violations of other state laws. Moreover, students and educators have expressed concern that recording classroom activities may negatively impact the learning experience for others, especially in classes that involve questions, discussion, or participation. To protect a learning environment in which everyone feels free to experiment with ideas, we ask you to refrain from recording in ways that could make others feel reluctant to ask questions, explore new ideas, or otherwise participate in class. Students must monitor their recordings so that they do not include participation by other students without permission. Students with disabilities will continue to have appropriate accommodations for recordings as established by the Office of Accessibility Services.

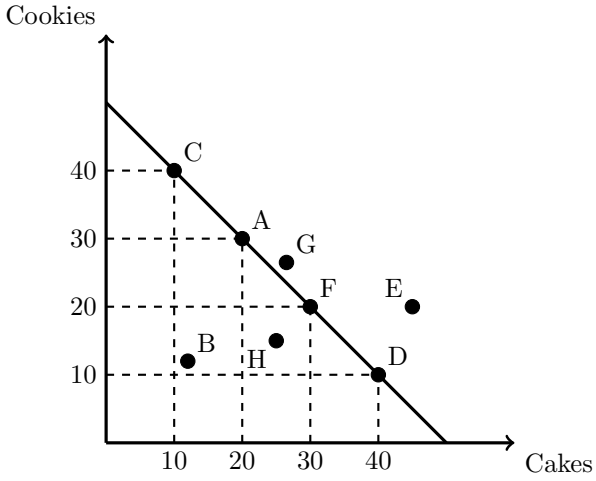
PRE Program @ ACE: Free Academic Assistance
This class will be participating in the Proactive Referral and Engagement (PRE) program (https://ace.fsu.edu/pre-student-faqs). The purpose of this program is to give you early academic assistance and advice so that you succeed in this class. Therefore, your course instructor may share information about your class performance with Dr. Samantha Tackett, who may reach out to you via email or phone. She and ACE staff can connect you to one-on-one assistance with study skills tutors to discuss time management, developing a study plan, finding tutoring, and/or connecting with offices to support your success. If you would like to contact Dr. Samantha Tackett directly, please use the information below:

Email: stackett@fsu.edu
Phone: 850-645-4047
Office: William Johnston Building G015B

Practice Problems

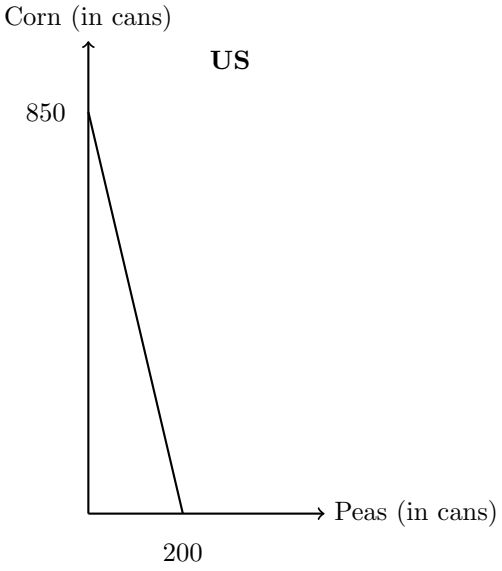
Production Possibilities Frontiers

Use the following production possibilities frontier to answer questions 1-3.



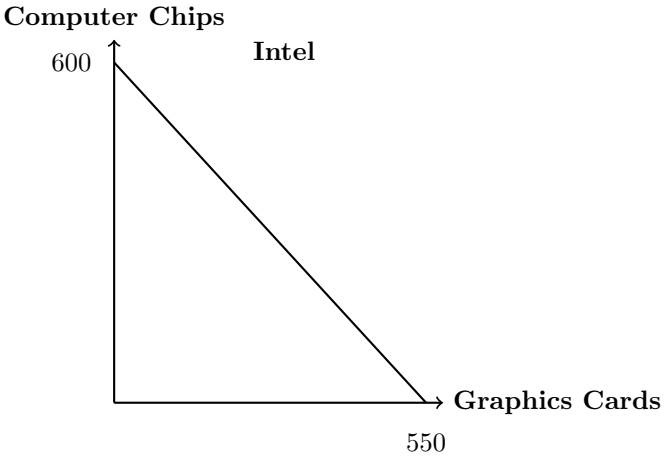
1. Which points on the PPF denote production bundles which are inefficient?
2. Which points on the PPF denote production bundles which are efficient?
3. Which points on the PPF denote production bundles which are impossible?

Use the following production possibilities frontier for the US to answer questions 4-6.



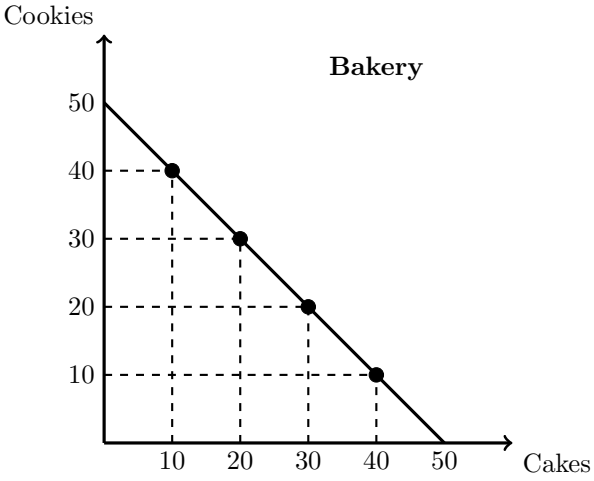
4. What is the opportunity cost of 1 can of corn for the US?
5. What is the opportunity cost of 1 can of peas for the US?
6. What is the opportunity cost of 50 cans of corn for the US?

Use the following production possibilities frontier for the US to answer questions 7-11.



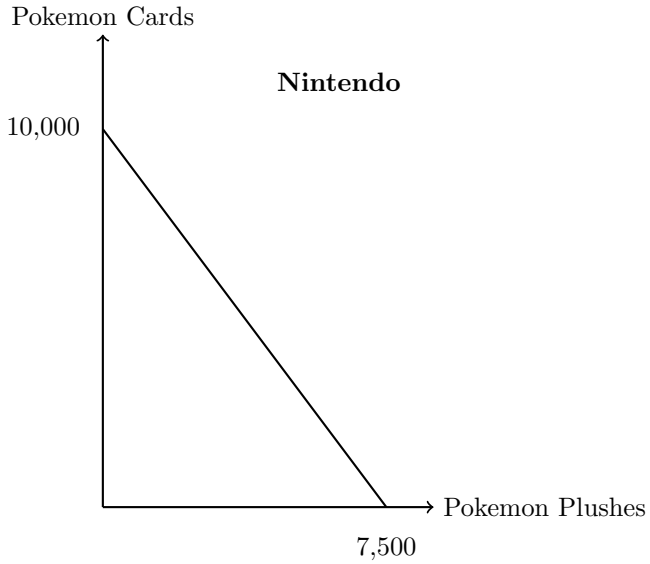
7. What is the opportunity cost of 1 computer chip for Intel?
8. What is the opportunity cost of 1 graphics card for Intel?
9. What is the opportunity cost of 250 computer chips for Intel?
10. What is the opportunity cost of 125 graphics cards for Intel?
11. What is the opportunity cost of 550 graphics cards for Intel?

Use the following production possibilities frontier for a bakery to answer questions 12-17.



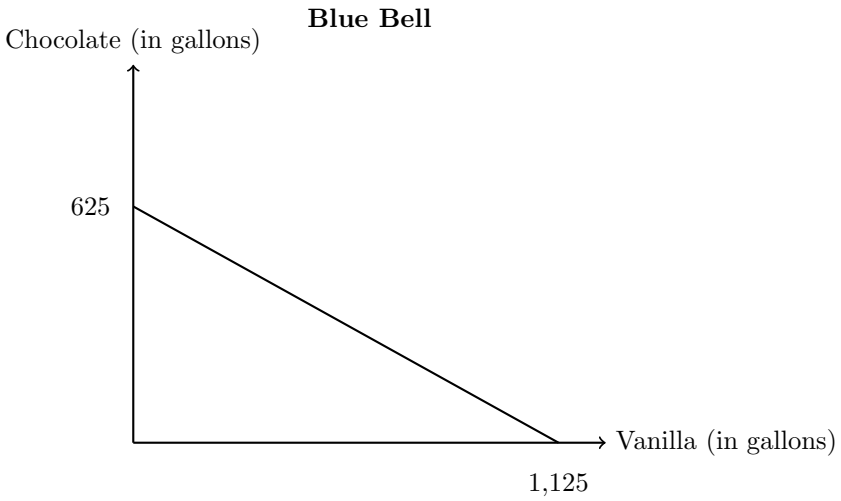
12. Is a production bundle of 30 cookies and 20 cakes efficient, inefficient, or impossible?
13. Is a production bundle of 20 cookies and 20 cakes efficient, inefficient, or impossible?
14. Is a production bundle of 1 cookie and 50 cakes efficient, inefficient, or impossible?
15. Is a production bundle of 20 cookies and 29 cakes efficient, inefficient, or impossible?
16. What is the opportunity cost of one cookie?
17. What is the opportunity cost of one cake?

Use the following production possibilities frontier for Nintendo for questions 18-24.



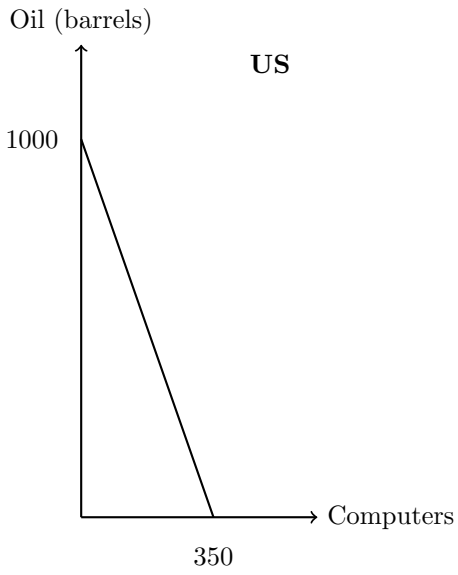
18. What is the opportunity cost of 1 Pokemon plush?
19. What is the opportunity cost of 1 Pokemon card?
20. What is the opportunity cost of 3,200 Pokemon cards?
21. Is a production bundle of 3,200 Pokemon cards and 5,100 Pokemon plush efficient, inefficient, or impossible?
22. Is a production bundle of 1,000 Pokemon cards and 750 Pokemon plush efficient, inefficient, or impossible?
23. Is a production bundle of 9,000 Pokemon cards and 1,000 Pokemon plush efficient, inefficient, or impossible?
24. Is a production bundle of 5,500 Pokemon cards and 4,125 Pokemon plush efficient, inefficient, or impossible?

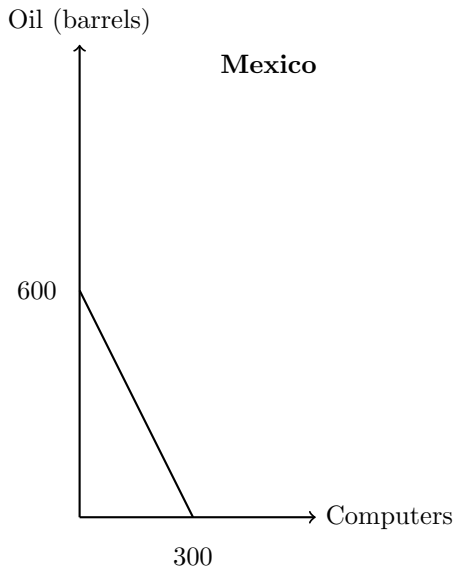
Use the following production possibilities frontier for Blue Bell for questions 25-31.



25. What is the opportunity cost of one gallon of chocolate ice cream?
26. What is the opportunity cost of one gallon of vanilla ice cream?
27. What is the opportunity cost of 250 gallon of chocolate ice cream?
28. What is the opportunity cost of 785 gallon of vanilla ice cream?
29. Is a production bundle of 550 gallons of chocolate and 135 gallons of vanilla ice cream efficient, inefficient, or impossible?
30. Is a production bundle of 600 gallons of chocolate and 150 gallons of vanilla ice cream efficient, inefficient, or impossible?
31. Is a production bundle of 250 gallons of chocolate and 600 gallons of vanilla ice cream efficient, inefficient, or impossible?

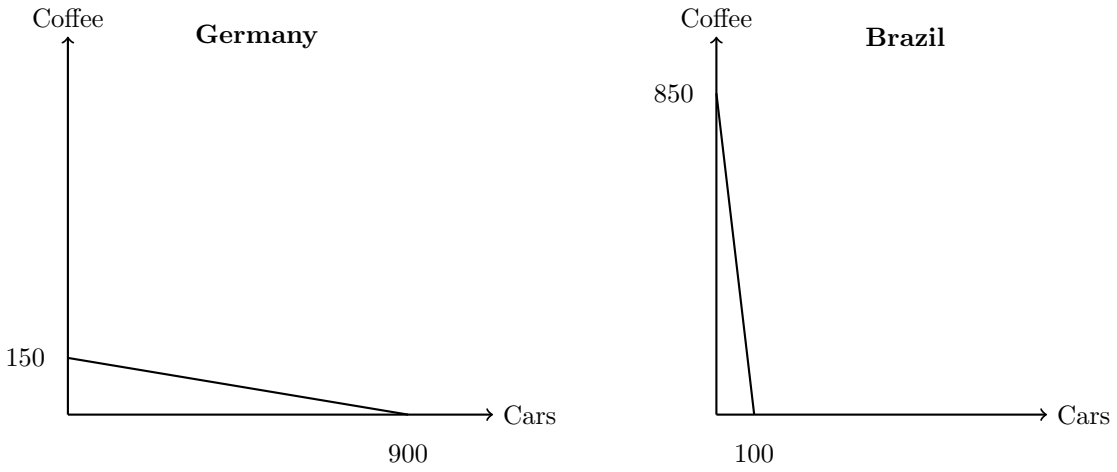
Use the following production possibilities frontier for the US and Mexico to answer questions 32-41.





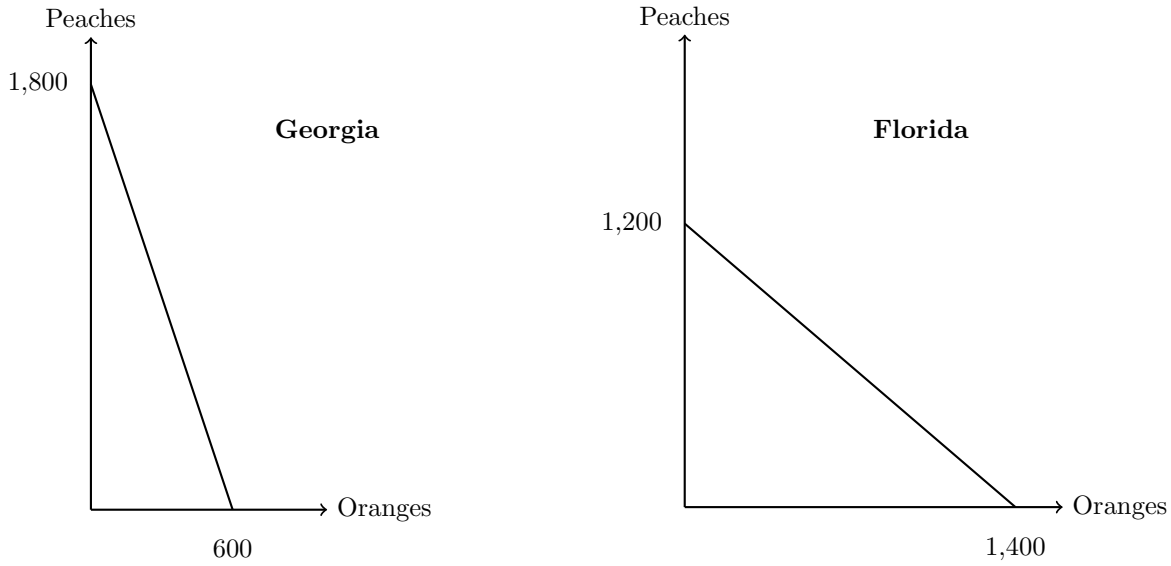
32. What is the opportunity cost of 1 barrel of oil for the US and Mexico?
33. What is the opportunity cost of 1 computer for the US and Mexico?
34. Is a production bundle of 400 barrels of oil and 210 computers efficient, inefficient, or impossible for the US?
35. Is a production bundle of 400 barrels of oil and 210 computers efficient, inefficient, or impossible for Mexico?
36. Is a production bundle of 350 barrels of oil and 180 computers efficient, inefficient, or impossible for Mexico?
37. Which nation has the absolute advantage in oil?
38. Which nation has the absolute advantage in computers?
39. Which nation has the comparative advantage in oil?
40. Which nation has the comparative advantage in computers?
41. Is there a trade which can allow both of these countries to consumer a bundle which would be impossible for them to produce on their own?

Use the following production possibilities frontier for the Germany and Brazil to answer questions 42-51.



42. What is the opportunity cost of 1 coffee in Germany and Brazil?
43. What is the opportunity cost of 1 car in Germany and Brazil?
44. Is a production bundle of 30 coffees and 700 cars efficient, inefficient, or impossible for the Germany?
45. Is a production bundle of 340 coffees and 60 cars efficient, inefficient, or impossible for the Brazil?
46. Which nation has the absolute advantage in coffee?
47. Which nation has the absolute advantage in cars?
48. Which nation has the comparative advantage in coffee?
49. Which nation has the comparative advantage in cars?
50. Is there a trade which can allow both of these countries to consumer a bundle which would be impossible for them to produce on their own?
51. Suppose each country completely specializes and then trades 100 cars from Germany to Brazil for 500 coffees. How much more coffee does Germany have than if they produced only 800 cars efficiently? How many more cars does Brazil have than if they produced only 350 coffee efficiently? Assume that each country produces efficiently under isolation (i.e. no trade).

Use the following production possibilities frontier for Georgia and Florida to answer questions 52-55.



Both Georgia and Florida decide to specialize. They then trade 550 oranges for 1,000 peaches.

Note: It is on you to know who specializes in what and who trades what.

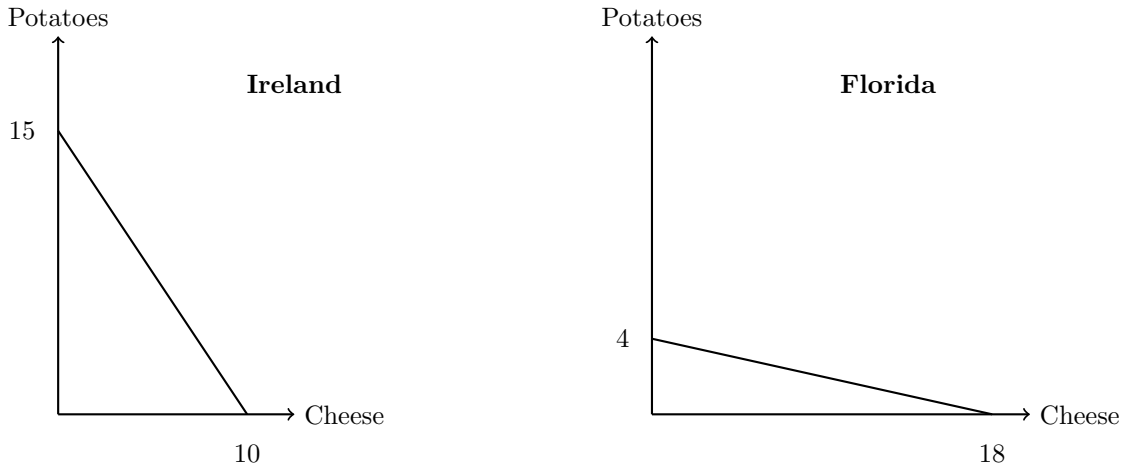
52. Suppose Georgia wants 550 oranges and produces efficiently. How much more do they have due to specialization and trade (rather than isolationism)?

53. Suppose Georgia wants 800 peaches and produces efficiently. How much more do they have due to specialization and trade (rather than isolationism)?

54. Suppose Florida wants 850 oranges and produces efficiently. How much more do they have due to specialization and trade (rather than isolationism)?

55. Suppose Florida wants 1,000 peaches and produces efficiently. How much more do they have due to specialization and trade (rather than isolationism)?

Use the following production possibilities frontier for Ireland and France to answer questions 56-59.



Both Ireland and France decide to specialize. They then trade 4 cheese for 3 potatoes.

Note: It is on you to know who specializes in what and who trades what.

56. Suppose Ireland wants 4 cheese and produces efficiently. How much more do they have due to specialization and trade (rather than isolationism)?

57. Suppose Ireland wants 12 potatoes and produces efficiently. How much more do they have due to specialization and trade (rather than isolationism)?

58. Suppose France wants 14 cheese and produces efficiently. How much more do they have due to specialization and trade (rather than isolationism)?

59. Suppose France wants 3 potatoes and produces efficiently. How much more do they have due to specialization and trade (rather than isolationism)?

Answers

1. B, H since the points are inside the frontier
2. A, C, D, F since the points are on the frontier
3. E, G since the points are outside the frontier
4. $OC_{\text{corn}} = \frac{200 \text{ cans of peas}}{850 \text{ cans of corn}} = \frac{4}{17}$ or ~ 0.235 cans of peas
5. $OC_{\text{pea}} = \frac{200 \text{ cans of corn}}{850 \text{ cans of peas}} = \frac{17}{4}$ or 4.25 cans of corn
6. $OC_{50 \text{ cans of corn}} = 50 \times OC_{\text{corn}} = 50 \times \frac{4}{17} = \frac{200}{17}$ or ~ 11.765 cans of peas
7. $OC_{\text{computer chip}} = \frac{550 \text{ graphics cards}}{600 \text{ computer chips}} = \frac{11}{12}$ or ~ 0.917 graphics cards
8. $OC_{\text{graphics card}} = \frac{600 \text{ computer chips}}{550 \text{ graphics cards}} = \frac{12}{11}$ or ~ 1.091 computer chips
9. $OC_{250 \text{ computer chips}} = 250 \times OC_{\text{computer chip}} = 250 \times \frac{12}{11} = \frac{1375}{6}$ or ~ 229.167 graphics cards
10. $OC_{125 \text{ gcs}} = 125 \times OC_{\text{gc}} = 125 \times \frac{12}{11} = \frac{550 \text{ graphics cards}}{600 \text{ computer chips}} = \frac{1500}{11}$ or ~ 136.364 computer chips
11. $OC_{550 \text{ gcs}} = 125 \times OC_{\text{gc}} = 550 \times \frac{12}{11} = \frac{550 \text{ graphics cards}}{600 \text{ computer chips}} = 600$ computer chips
    Notice the opportunity of the maximum number of graphics cards is the maximum number of computer chips which can be produced. This will always be the case.
12. Efficient since it is on the frontier.
13. Inefficient since it is under the frontier.
14. Impossible since it is outside the frontier.
15. Inefficient since it is under the frontier.
16. $OC_{\text{cookie}} = \frac{50 \text{ cakes}}{50 \text{ cookies}} = 1$ cake
17. $OC_{\text{cakes}} = \frac{50 \text{ cookies}}{50 \text{ cakes}} = 1$ cookies
18. $OC_{\text{plush}} = \frac{10{,}000 \text{ cards}}{7{,}500 \text{ plushes}} = \frac{4}{3}$ or ~ 1.3 cards
19. $OC_{\text{card}} = \frac{7{,}500 \text{ plushes}}{10{,}000 \text{ cards}} = \frac{3}{4}$ or 0.75 plushes
20. $OC_{3{,}200 \text{ cards}} = 3,200 \times OC_{\text{card}} = 3,200 \times \frac{3}{4} = 2,400$ plush
21. Continuing from 9...
    $Max_{plush} - OC_{3{,}200 \text{ cards}} = 7,500 - 2,400 = 5,100$ plush
    Therefore this bundle is efficient.
22. $OC_{1{,}000 \text{ cards}} = 1,000 \times OC_{\text{card}} = 1,000 \times \frac{3}{4} = 750$ plush
    $Max_{plush} - OC_{1{,}000 \text{ cards}} = 7,500 - 750 = 6,750 > 750$ plush
    Thus this bundle is inefficient since they could produce more of either good.
23. $OC_{9{,}000 \text{ cards}} = 9,000 \times OC_{\text{card}} = 9,000 \times \frac{3}{4} = 6,750$ plush
    $Max_{plush} - OC_{9{,}000 \text{ cards}} = 7,500 - 6,750 = 750 < 1,000$ plush
    Thus this bundle is impossible.
24. $OC_{5{,}500 \text{ cards}} = 5,500 \times OC_{\text{card}} = 5,500 \times \frac{3}{4} = 4,125$ plush
    $Max_{plush} - OC_{5{,}500 \text{ cards}} = 7,500 - 4,125 = 3,375$ plush
    Thus this bundle is impossible.
25. $OC_{\text{chocolate}} = \frac{1{,}125 \text{ vanilla}}{625 \text{ chocolate}} = \frac{9}{5}$ or 1.8 gallons of vanilla ice cream
26. $OC_{\text{vanilla}} = \frac{625 \text{ chocolate}}{1{,}125 \text{ vanilla}} = \frac{5}{9}$ or ~ 0.56 gallons of chocolate ice cream
27. $OC_{250 \text{ chocolate}} = 250 \times OC_{\text{chocolate}} = 250 \times \frac{9}{5} = 450$ gallons of vanilla ice cream

28. $OC_{785 \text{ vanilla}} = 785 \times OC_{\text{vanilla}} = 785 \times \frac{5}{9} = \frac{3925}{9}$ or ~ 436.11 gallons of chocolate ice cream

29. $OC_{550 \text{ chocolate}} = 550 \times OC_{\text{chocolate}} = 550 \times \frac{9}{5} = 990$ gallons of vanilla ice cream
    $Max_{\text{vanilla}} - OC_{550 \text{ chocolate}} = 1,125 - 990 = 135$ gallons of vanilla ice cream
    Therefore this bundle is efficient.

30. $OC_{600 \text{ chocolate}} = 600 \times OC_{\text{chocolate}} = 600 \times \frac{9}{5} = 1,080$ gallons of vanilla ice cream
    $Max_{\text{vanilla}} - OC_{600 \text{ chocolate}} = 1,125 - 1,080 = 45 < 150$ gallons of vanilla ice cream
    Therefore this bundle is impossible.

31. $OC_{250 \text{ chocolate}} = 250 \times OC_{\text{chocolate}} = 250 \times \frac{9}{5} = 450$ gallons of vanilla ice cream
    $Max_{\text{vanilla}} - OC_{550 \text{ chocolate}} = 1,125 - 450 = 675$ gallons of vanilla ice cream
    Therefore this bundle is inefficient.

32. $OC_{\text{oil, US}} = \frac{350 \text{ computers}}{1000 \text{ oil}} = \frac{7}{20}$ or 0.35 computers
    $OC_{\text{oil, M}} = \frac{300 \text{ computers}}{600 \text{ oil}} = \frac{1}{2}$ or 0.50 computers

33. $OC_{\text{computer, US}} = \frac{1000 \text{ oil}}{350 \text{ computers}} = \frac{20}{7}$ or ~ 2.857 oil
    $OC_{\text{computer, M}} = \frac{600 \text{ oil}}{300 \text{ computer}} = 2$ oil

34. $OC_{400 \text{ oil, US}} = 400 \times OC_{\text{oil, US}} = 400 \times \frac{7}{20} = 140$ computers
    $Max_{\text{computers, US}} - OC_{400 \text{ oil, US}} = 350 - 140 = 210$ computers
    Therefore this bundle is efficient in the US.

35. $OC_{400 \text{ oil, M}} = 400 \times OC_{\text{oil, M}} = 400 \times \frac{1}{2} = 200$ computers
    $Max_{\text{computers, M}} - OC_{400 \text{ oil, N}} = 300 - 200 = 100$ computers
    Therefore this bundle is impossible in Mexico.

36. $OC_{350 \text{ oil, M}} = 400 \times OC_{\text{oil, M}} = 350 \times \frac{1}{2} = 175$ computers
    $Max_{\text{computers, M}} - OC_{350 \text{ oil, N}} = 300 - 175 = 125$ computers
    Therefore this bundle is impossible in Mexico.

37. The US since they can produce more oil.

38. The US since they can produce more computers.

39. The US since their opportunity cost is less.

40. Mexico since their opportunity cost is less.

41. Yes! There is an opportunity for each country to specialize in the good they have the comparative advantage in and then trade it to the other country. Consider the example below.

    Suppose the US specializes in oil and Mexico in computers. US has the production bundle of (1000 oil, 0 computers) and Mexico's is (0 oil, and 300 computers). Then they decide to make a trade where the US sends Mexico 100 barrels of oil for 40 computers.

    This results in the following consumption bundles: (900 oil, 40 computers) for the US and (100 oil, 260 computers) for Mexico. Now we can check that these production bundles are impossible for each country.

    $OC_{900 \text{ oil, US}} = 900 \times OC_{\text{oil, US}} = 900 \times \frac{7}{20} = 315$ computers $OC_{260 \text{ computers, M}} = 260 \times OC_{\text{computer, M}} = 260 \times 2 = 520$ oil

    Therefore, if the US wants 900 barrels of oil, the maximum amount of computers they could produce is 35 (350-315) computers, but with trade they have 45 computers!

    A similar point is true for Mexico. If they chose to produce 260 computers, the most oil they could produce is 80 (600-520) oil. But they receive 100 from the US which is impossible for them to produce!

42. $OC_{\text{coffee, G}} = \frac{900 \text{ cars}}{150 \text{ coffees}} = 6$ cars

    $OC_{\text{coffee, B}} = \frac{100 \text{ cars}}{850 \text{ coffees}} = \frac{2}{17}$ or ~ 0.118 cars

43. $OC_{\text{car, G}} = \frac{150 \text{ coffees}}{900 \text{ cars}} = \frac{1}{6}$ or ~ 0.167 coffees

    $OC_{\text{car, B}} = \frac{850 \text{ coffee}}{100 \text{ cars}} = \frac{17}{2}$ or 8.5 coffees

44. $OC_{30 \text{ coffees, G}} = 30 \times OC_{\text{coffee, G}} = 30 \times 6 = 180$

    $Max_{\text{cars, G}} - OC_{30 \text{ coffees,G}} = 900 - 150 = 750$ cars

    Since $700 < 750$, this bundle is inefficient (i.e. under the frontier)

45. $OC_{340 \text{ coffees, B}} = 340 \times OC_{\text{coffee, B}} = 340 \times \frac{2}{17} = 40$ cars

    $Max_{\text{cars,B}} - OC_{340 \text{ coffees, B}} = 100 - 40 = 60$ cars

    Therefore this bundle is on the frontier and is efficient.

46. Brazil since they can produce more coffee.

47. Germany since they can produce more cars.

48. Brazil since their opportunity cost of producing coffee is less than Germany's. You solve for this in question 42 ($OC_{\text{coffee, G}} > OC_{\text{coffee, B}}$).

49. Germany since their opportunity cost of producing cars is less than Brazil's. You solve for this in question 43 ($OC_{\text{car, G}} < OC_{\text{car, B}}$).

    This is also true since Brazil has the comparative advantage in coffee and they cannot have the comparative advantage in both goods. Thus Germany must have the comparative advantage in cars.

50. Yes! Since these countries each have the comparative advantage in one of the goods they can each specialize in that good and then trade. This will result in a consumption bundle which is impossible to produce for each country. Consider the following example.

    Suppose Germany specializes in producing cars and Brazil in coffee since those are the goods each of them have the comparative advantage in. Germany's production bundle is then (900 cars, 0 coffee) and Brazil's is (0 cars, 850 coffee).

    What if they then make a trade where Germany sends 300 cars to Brazil in return for 500 coffee? Then their final consumption bundles (after the trade) is (600 cars, 500 coffee) for Germany and (300 cars, and 350 coffee) for Brazil.

    With current resources and knowledge, it is impossible for Germany to produce 500 coffee and for Brazil to produce 300 cars. However, with trade they can and each is made better off!

51. These country fully specialize and produce the following: 900 cars and no coffee in Germany and 0 cars and 850 coffee in Brazil.

    After the trade they have: 800 cars and 500 coffee in Germany and 100 cars and 350 coffee in Brazil.

    If Germany chose to produce 800 efficiently, they could produce up to 16.67 coffee. So they have 483.33 more coffee due to trade.

    If Brazil chose to produce 350 coffee efficiently, they could produce up to 58.82 cars. So they have 41.18 more cars due to trade.

    I get each of these numbers using the math below.

    $OC_{800 \text{ cars, G}} = 800 \times OC_{\text{car, G}} = 800 \times \frac{1}{6} = \frac{400}{3}$ or 133.33 coffee

    $Max_{\text{coffee, G}} - OC_{800 \text{ cars, G}} = 150 - 133.33 = 16.66$

    $500 - 16.66 = 483.33$ more coffee for Germany

    $OC_{350 \text{ coffee, B}} = 350 \times OC_{\text{coffee, B}} = 350 \times \frac{2}{17} = \frac{700}{17}$ or 41.18 cars

    $Max_{\text{cars, B}} - OC_{350 \text{ coffee, B}} = 100 - 41.18 = 58.54$

    $100 - 58.54 = 41.18$ more cars for Brazil

The following are all information required to solve questions 52-55.

GA: $OC_{peach,G} = \frac{600 \text{ oranges}}{1{,}800 \text{ peaches}} = \frac{1}{3}$ or 0.33 oranges
$OC_{orange,G} = \frac{1{,}800 \text{ peaches}}{600 \text{ oranges}} = 3$ peaches

FL: $OC_{peach,F} = \frac{1{,}400 \text{ oranges}}{1{,}200 \text{ peaches}} = \frac{7}{6}$ or 1.17 oranges
$OC_{orange,F} = \frac{1{,}200 \text{ peaches}}{1{,}400 \text{ oranges}} = \frac{6}{7}$ or 0.857 peaches

By specializing, Georgia will produce 0 oranges and 1,800 peaches whereas Florida will produce 1,400 oranges and 0 peaches.

After the trade, Georgia will have 550 oranges and 800 peaches. Florida will have 850 oranges and 1,000 peaches. These are the bundles that they will consume.

52. $OC_{550\ O,G} = 550 \times 3 = 1{,}650$ peaches
$1{,}800 - 1{,}650 = 150$
$800 - 150 =$ $\boxed{\text{650 peaches better}}$

53. $OC_{800\ P,G} = 800 \times \frac{1}{3} = 266.67$ oranges
$600 - 266.67 = 333.33$
$550 - 333.33 =$ $\boxed{\text{216.67 oranges better}}$

54. $OC_{850\ O,F} = 850 \times \frac{6}{7} = 728.57$ peaches
$1{,}200 - 728.57 = 471.43$
$1{,}000 - 471.43 =$ $\boxed{\text{528.57 peaches better}}$

55. $OC_{1{,}000\ P,F} = 1{,}000 \times \frac{7}{6} = 857.14$ oranges
$1{,}400 - 857.14 = 542.88$
$850 - 542.88 =$ $\boxed{\text{307.14 oranges better}}$

The following are all information required to solve questions 56-58.

I: $OC_{potato,I} = \frac{10 \text{ cheese}}{15 \text{ potatoes}} = \frac{2}{3}$ or 0.67 cheese
$OC_{cheese,I} = \frac{15 \text{ potatoes}}{10 \text{ cheese}} = \frac{3}{2}$ or 1.5 potatoes

F: $OC_{potatoes,F} = \frac{18 \text{ cheese}}{4 \text{ potatoes}} = \frac{9}{2}$ or 4.5 cheese
$OC_{cheese,F} = \frac{4 \text{ potatoes}}{18 \text{ cheese}} = \frac{2}{9}$ or 0.22 potatoes

By specializing, Ireland will produce 0 cheese and 15 potatoes whereas France will produce 18 cheese and 0 potatoes.

After the trade, Ireland will have 4 cheese and 12 potatoes. France will have 14 cheese and 3 potatoes. These are the bundles that they will consume.

56. $OC_{4\ c,I} = 4 \times \frac{3}{2} = 6$ potatoes
$15 - 6 = 9$ potatoes
$12 - 9 =$ $\boxed{\text{3 potatoes better}}$

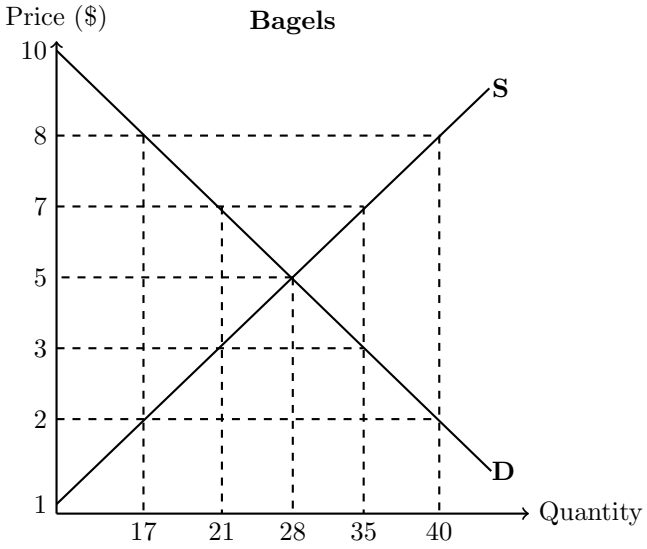
57. $OC_{12\ p,I} = 12 \times \frac{2}{3} = 8$ cheese
$10 - 8 = 2$ cheese
$4 - 2 =$ $\boxed{\text{2 cheese better}}$

58. $OC_{14\ c,F} = 14 \times \frac{2}{9} = \frac{28}{9}$ or 3.11 potatoes
$4 - 3.11 = 0.89$ potatoes
$3 - 0.89 =$ $\boxed{\text{2.11 potatoes better}}$

59. $OC_{3\ p,F} = 3 \times \frac{9}{2} = \frac{27}{2}$ or 13.5 cheese
$18 - 13.5 = 4.5$ cheese
$14 - 4.5 =$ $\boxed{\text{9.5 cheese better}}$

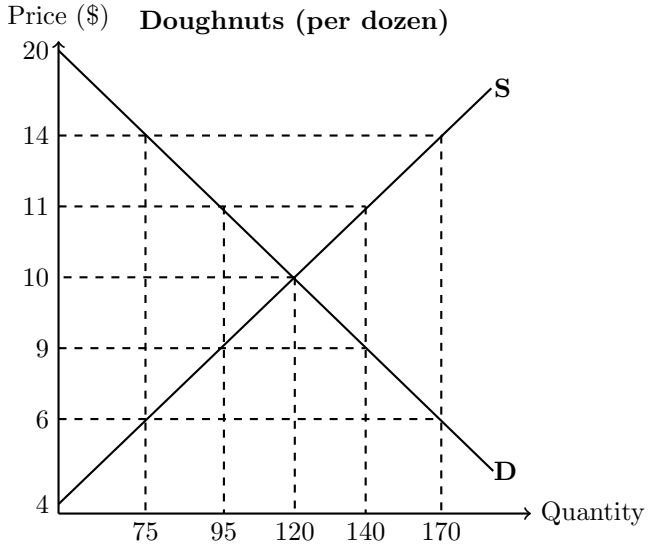
Supply and Demand

Use the following graph representing the market of bagels to answer questions 1-12.



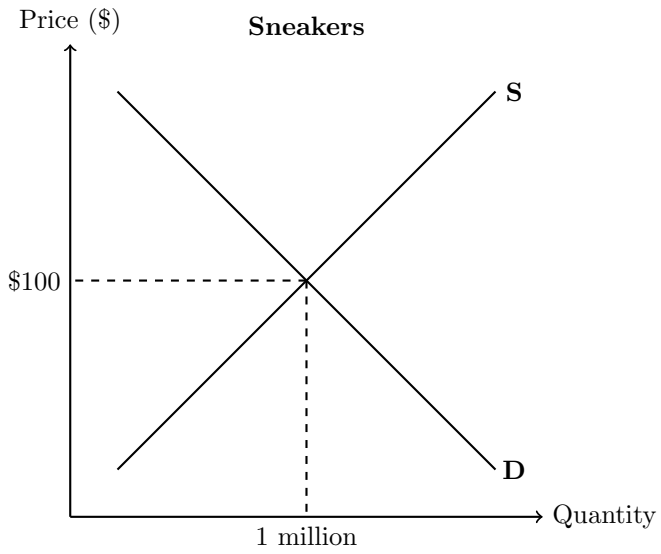
1. What is the equilibrium price(s) in the market for bagels?
2. At what price(s) would this market operate in a surplus?
3. At what price(s) would this market operate in a shortage?
4. The market price for bagels is $8. Solve for consumer surplus, producer surplus, and dead weight loss.
5. The market price for bagels is $7. Solve for consumer surplus, producer surplus, and dead weight loss.
6. The market price for bagels is $5. Solve for consumer surplus, producer surplus, and dead weight loss.
7. The market price for bagels is $3. Solve for consumer surplus, producer surplus, and dead weight loss.
8. The market price for bagels is $2. Solve for consumer surplus, producer surplus, and dead weight loss.
9. Suppose this market operates at a price of $8. Are consumers better or worse off than they would be at equilibrium (and by how much)? What about producers?
10. Suppose this market operates at a price of $7. Are consumers better or worse off than they would be at equilibrium (and by how much)? What about producers?
11. Suppose this market operates at a price of $3. Are consumers better or worse off than they would be at equilibrium (and by how much)? What about producers?
12. Suppose this market operates at a price of $2. Are consumers better or worse off than they would be at equilibrium (and by how much)? What about producers?

Use the following graph representing the market of doughnuts to answer questions 13-24.



13. What is the equilibrium price(s) in the market for doughnuts?
14. At what price(s) would this market operate in a surplus?
15. At what price(s) would this market operate in a shortage?
16. The market price for doughnuts is $14. Solve for consumer surplus, producer surplus, and dead weight loss.
17. The market price for doughnuts is $11. Solve for consumer surplus, producer surplus, and dead weight loss.
18. The market price for doughnuts is $10. Solve for consumer surplus, producer surplus, and dead weight loss.
19. The market price for doughnuts is $9. Solve for consumer surplus, producer surplus, and dead weight loss.
20. The market price for doughnuts is $6. Solve for consumer surplus, producer surplus, and dead weight loss.
21. Suppose this market operates at a price of $14. Are consumers better or worse off than they would be at equilibrium (and by how much)? What about producers?
22. Suppose this market operates at a price of $11. Are consumers better or worse off than they would be at equilibrium (and by how much)? What about producers?
23. Suppose this market operates at a price of $9. Are consumers better or worse off than they would be at equilibrium (and by how much)? What about producers?
24. Suppose this market operates at a price of $6. Are consumers better or worse off than they would be at equilibrium (and by how much)? What about producers?

Use the following graph representing the market of sneakers to answer questions 25-34. Consider each question by itself (i.e. none of the changes made in previous questions apply, so the market always begins in equilibrium).



25. The market for shoes begins in equilibrium. Suppose the price of shoe laces (that come with the shoe) suddenly quadruples. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

26. The market for shoes begins in equilibrium. Suppose people begin to wear flip flops more often. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

27. The market for shoes begins in equilibrium. Suppose many clothing brands, who previously didn't produce shoes, now begin to make shoes. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

28. The market for shoes begins in equilibrium. Suppose everyone's income suddenly doubles and sneakers are a normal good. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

29. The market for shoes begins in equilibrium. Suppose the price of socks increases. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

30. The market for shoes begins in equilibrium. Suppose there is a sudden baby boom across the globe. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

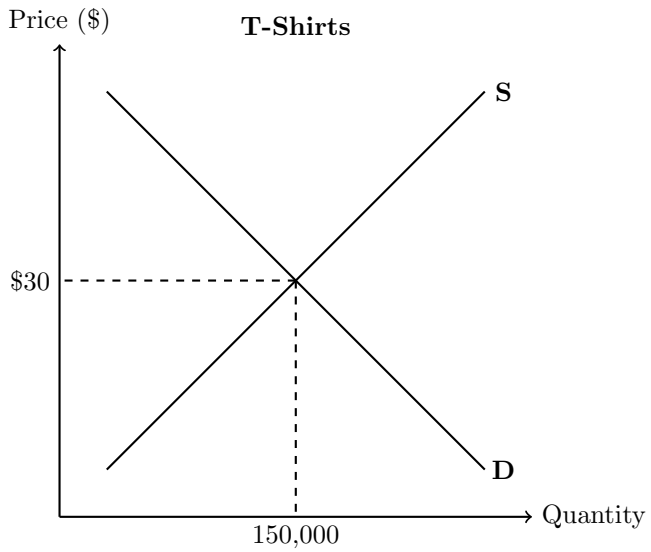
31. The market for shoes begins in equilibrium. Suppose heels become less expensive. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

32. The market for shoes begins in equilibrium. Suppose people now expect sneaker prices to decrease in the future. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

33. The market for shoes begins in equilibrium. Suppose the price of rubber decreases at the same time that people begin going barefoot often. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

34. The market for shoes begins in equilibrium. Suppose everyone gets a stimulus check from the government at the same time that a new (and better) sneaker making robot comes out. Sneakers are a normal good. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

Use the following graph representing the market of t-shirts to answer questions 35-44. Consider each question by itself (i.e. none of the changes made in previous questions apply, so the market always begins in equilibrium).



35. The market for t-shirts begins in equilibrium. Suppose people begin to wear button shirts instead of t-shirts. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

36. The market for t-shirts begins in equilibrium. Suppose many tech companies now expand to produce t-shirts. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

37. The market for t-shirts begins in equilibrium. Suppose the price of shorts decreases. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

38. The market for t-shirts begins in equilibrium. Suppose t-shirts become the new business attire. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

39. The market for t-shirts begins in equilibrium. Suppose a new t-shirt making process comes out which is better than the old technology. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

40. The market for t-shirts begins in equilibrium. Suppose all government workers get a pay raise and t-shirts are an inferior good. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

41. The market for t-shirts begins in equilibrium. Suppose the price of long sleeve shirts increases. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

42. The market for t-shirts begins in equilibrium. Suppose everyone expects the price of t-shirts to increase in a few months. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

43. The market for t-shirts begins in equilibrium. Suppose the price of cotton decreases and global warming intensifies. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

44. The market for t-shirts begins in equilibrium. Suppose the price of sewing string increases and people have a new distain for people who wear t-shirts. What happens to supply, demand, quantity supplied, quantity demanded, market quantity, and market price?

45. Consider the market for coffee. Suppose there becomes a growing coffee culture and there is a coffee-eating bug infestation in Latin America. What happens to supply, demand, market quantity, and market price?

46. Consider the market for compact cars. Suppose people begin having larger families and the cost of rubber decreases. What happens to supply, demand, market quantity, and market price?

47. Consider the market for wheat. Suppose a new diet trend starts which promotes low-carbs and gluten-free food. At the same time, the cost of gasoline increases. What happens to supply, demand, market quantity, and market price?

48. Consider the market for electric vehicles. Suppose people become more conscious of global warming and battery production improves. What happens to supply, demand, market quantity, and market price?

49. Consider the market for flights in the Bahamas. Suppose summer begins and a new larger plane is introduced. What happens to supply, demand, market quantity, and market price?

50. Consider the market for gasoline powered cars. Suppose the price of electric cars decreases. What happens to supply, demand, market quantity, and market price?

51. Consider the market for streaming services. Suppose a new season of a hit TV show comes our on Netflix (e.g. Stranger Things) and the actors union reduces the minimum price paid to actors. What happens to supply, demand, market quantity, and market price?

52. Consider the market for landline phones (home phones connected to the wall via wire). Suppose the iPhone is introduced making the landline obsolete and the cost of the wire connected to the phone increases. What happens to supply, demand, market quantity, and market price?

53. Consider the market for online grocery delivery (GrubHub, InstaCart, DoorDash, etc.). Suppose people begin to prioritize convenience more than they did previously and more companies enter the market. What happens to supply, demand, market quantity, and market price?

54. Consider the market for diamonds. Suppose many people plan to propose this year and many labs which produce diamonds burn down. What happens to supply, demand, market quantity, and market price?

55. Consider the market for computers. Suppose everyone believes the price of computers will go up in the future. What happens to supply, demand, market quantity, and market price?

56. Consider the market for computers. Suppose only consumers believe the price of computers will go up in the future. What happens to supply, demand, market quantity, and market price? (Notice the difference in the wording from question 11).

Answers

1. \$5
2. \$7 and \$8
3. \$2 and \$3
4. $CS = \frac{1}{2} \times \$2 \times 17 = \$17$
   $PS = \frac{1}{2} \times (\$7 + \$6) \times 17 = \$110.50$
   $DWL = \frac{1}{2} \times \$6 \times 11 = \$33$
5. $CS = \frac{1}{2} \times \$3 \times 21 = \$31.50$
   $PS = \frac{1}{2} \times (\$6 + \$4) \times 21 = \$105$
   $DWL = \frac{1}{2} \times \$4 \times 7 = \$14$
6. $CS = \frac{1}{2} \times \$5 \times 28 = \$70$
   $PS = \frac{1}{2} \times \$4 \times 28 = \$56$
   $DWL = \$0$
7. $CS = \frac{1}{2} \times (\$7 + \$4) \times 21 = \$115.50$
   $PS = \frac{1}{2} \times \$2 \times 21 = \$21$
   $DWL = \frac{1}{2} \times \$4 \times 7 = \$14$
8. $CS = \frac{1}{2} \times (\$8 + \$6) \times 17 = \$119$
   $PS = \frac{1}{2} \times \$1 \times 17 = \$8.60$
   $DWL = \frac{1}{2} \times \$6 \times 11 = \$33$
9. Consumers are \$53 (\$70-\$17) worse off. Producers are \$54.50 (\$110.50 - \$56) better off.
10. Consumers are \$38.50 (\$70-\$31.50) worse off. Producers are \$49 (\$105 - \$56) better off.
11. Consumers are \$45.50 (\$115.50-\$70) better off. Producers are \$35 (\$56 - \$21) worse off.
12. Consumers are \$49 (\$119-\$70) better off. Producers are \$47.50 (\$56 - \$8.50) worse off.
13. \$10
14. \$11 and \$14
15. \$6 and \$9
16. $CS = \frac{1}{2} \times \$(20 - 14) \times 75 = \$225$
    $PS = \frac{1}{2} \times \$(10 + 8) \times 75 = \$675$
    $DWL = \frac{1}{2} \times \$8 \times 45 = \$180$
17. $CS = \frac{1}{2} \times \$(20 - 11) \times 95 = \$427.50$
    $PS = \frac{1}{2} \times \$(7 + 2) \times 95 = \$427.50$
    $DWL = \frac{1}{2} \times \$2 \times 95 = \$95$
18. $CS = \frac{1}{2} \times \$(20 - 10) \times 120 = \$600$
    $PS = \frac{1}{2} \times \$(10 - 4) \times 120 = \$360$
    $DWL = \$0$
19. $CS = \frac{1}{2} \times \$(11 + 2) \times 95 = \$617.50$
    $PS = \frac{1}{2} \times \$ \times 95 = \$237.50$
    $DWL = \frac{1}{2} \times \$2 \times 95 = \$95$
20. $CS = \frac{1}{2} \times \$6 \times 75 = \$825$
    $PS = \frac{1}{2} \times \$(6 - 4) \times 75 = \$75$
    $DWL = \frac{1}{2} \times \$8 \times 45 = \$180$

21. Consumers are $375 worse off ($600 - $225). Producers are $315 better off ($675 - $360).
22. Consumers are $172.50 worse off ($600 - $427.50). Producers are $67.50 better off ($427.50 - $360).
23. Consumers are $17.50 better off ($617.50 - $600). Producers are $122.50 worse off ($360 - $237.50).
24. Consumers are $225 better off ($825 - $600). Producers are $285 worse off ($360 - $75).
25. Supply: Decreases
    Demand: No change
    Quantity supplied: Decreases
    Quantity demanded: Decreases
    Market quantity: Decreases
    Market price: Increases
26. Supply: No change
    Demand: Decreases
    Quantity supplied: Increases
    Quantity demanded: Increases
    Market quantity: Increases
    Market price: Increases
27. Supply: Increases
    Demand: No change
    Quantity supplied: Increases
    Quantity demanded: Increases
    Market quantity: Increases
    Market price: Decreases
28. Supply: No change
    Demand: Increases
    Quantity supplied: Increases
    Quantity demanded: Increases
    Market quantity: Increases
    Market price: Increases
29. Supply: No change
    Demand: Decreases
    Quantity supplied: Decreases
    Quantity demanded: Decreases
    Market quantity: Decreases
    Market price: Decreases
30. Supply: No change
    Demand: Increases
    Quantity supplied: Increases
    Quantity demanded: Increases
    Market quantity: Increases
    Market price: Increases
31. Supply: Increases
    Demand: Decreases
    Quantity supplied: Ambiguous
    Quantity demanded: Ambiguous
    Market quantity: Ambiguous
    Market price: Decreases

32. Supply: Decreases
    Demand: Increases
    Quantity supplied: Ambiguous
    Quantity demanded: Ambiguous
    Market quantity: Ambiguous
    Market price: Increases

33. Supply: Increases
    Demand: Decreases
    Quantity supplied: Ambiguous
    Quantity demanded: Ambiguous
    Market quantity: Ambiguous
    Market price: Decreases

34. Supply: Increases
    Demand: Increases
    Quantity supplied: Increases
    Quantity demanded: Increases
    Market quantity: Increases
    Market price: Ambiguous

35. Supply: No change
    Demand: Decreases
    Quantity supplied: Decreases
    Quantity demanded: Decreases
    Market quantity: Decreases
    Market price: Decreases

36. Supply: Increases
    Demand: No change
    Quantity supplied: Increases
    Quantity demanded: Increases
    Market quantity: Increases
    Market price: Decreases

37. Supply: No change
    Demand: Increases
    Quantity supplied: Increases
    Quantity demanded: Increases
    Market quantity: Increases
    Market price: Increases

38. Supply: No change
    Demand: Increases
    Quantity supplied: Increases
    Quantity demanded: Increases
    Market quantity: Increases
    Market price: Increases

39. Supply: Increases
    Demand: No change
    Quantity supplied: Increases
    Quantity demanded: Increases
    Market quantity: Increases
    Market price: Decreases

40. Supply: No change
    Demand: Decreases
    Quantity supplied: Decreases
    Quantity demanded: Decreases
    Market quantity: Decreases
    Market price: Decreases

41. Supply: Decreases
    Demand: Increases
    Quantity supplied: Ambiguous
    Quantity demanded: Ambiguous
    Market quantity: Ambiguous
    Market price: Increases

42. Supply: Decreases
    Demand: Increases
    Quantity supplied: Ambiguous
    Quantity demanded: Ambiguous
    Market quantity: Ambiguous
    Market price: Increases

43. Supply: Increases
    Demand: Increases
    Quantity supplied: Increases
    Quantity demanded: Increases
    Market quantity: Increases
    Market price: Ambiguous

44. Supply: Decreases
    Demand: Decreases
    Quantity supplied: Decreases
    Quantity demanded: Decreases
    Market quantity: Decreases
    Market price: Ambiguous

45. Supply: Decreases
    Demand: Increases
    Market quantity: The effect is ambiguous.
    Market price: Increases

46. Supply: Increases
    Demand: Increases
    Market quantity: Increases
    Market price: The effect is ambiguous

47. Supply: Decreases
    Demand: Decreases
    Market quantity: Decreases
    Market price: The effect is ambiguous.

48. Supply: Increases
    Demand: Decreases
    Market quantity: The effect is ambiguous.
    Market price: Decreases

49. Supply: Increases
    Demand: Increases
    Market quantity: Increases
    Market price: The effect is ambiguous.

50. Supply: Increases
    Demand: Decreases
    Market quantity: The effect is ambiguous.
    Market price: Decreases

51. Supply: Increases
    Demand: Increases
    Market quantity: Increases
    Market price: The effect is ambiguous.

52. Supply: Decreases
    Demand: Decreases
    Market quantity: Decreases
    Market price: The effect is ambiguous.

53. Supply: Increases
    Demand: Increases
    Market quantity: Increases
    Market price: The effect is ambiguous.

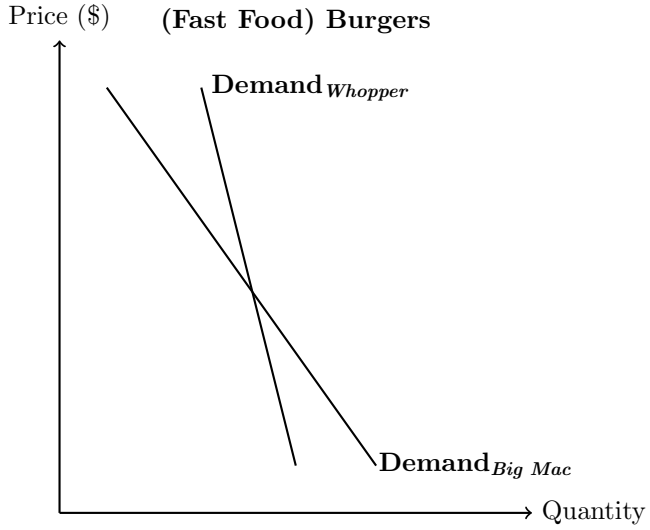
54. Supply: Decreases
    Demand: Increases
    Market quantity: The effect is ambiguous.
    Market price: Increases

55. Supply: Decreases
    Demand: Increases
    Market quantity: The effect is ambiguous.
    Market price: Increases

56. Supply: No change
    Demand: Increases
    Market quantity: Increases
    Market price: Increases

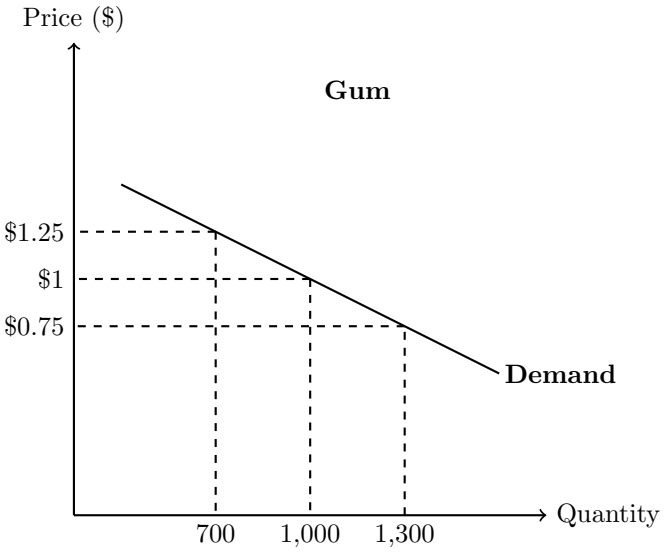
Elasticity

Use the following graph of the demand for various fast food burgers for question 1.



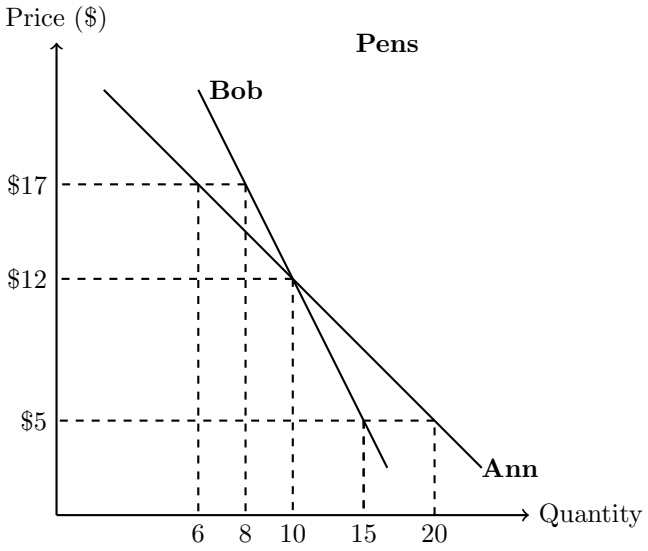
1. Which type of burger has more inelastic demand?
2. Domino's has a 20% off sale on pizza and thus sells 50% more pizza. What is the elasticity of demand for Domino's Pizza?
3. Based on your answer to the previous question, is the demand for Domino's pizza elastic or inelastic?
4. Suppose the price of headphone goes down by 25% at the same time that headphones sales go up by 5%. What is the elasticity of demand for headphones?
5. Based on your answer to the previous question, is the demand for headphones elastic or inelastic?
6. Monitors increase in price by 15%, so 15% less monitors are sold. What is the elasticity of demand for monitors?
7. Based on your answer to the previous question, is the demand for monitors elastic or inelastic?
8. Suppose Lowe's has a 10% sale on refrigerators for memorial day weekend. During memorial day weekend, they sell 18% more refrigerators during memorial day weekend than they do on a normal weekend. What is the elasticity of demand for refrigerators?
9. Based on your answer to the previous question, is the demand for refrigerators elastic or inelastic?
10. Suppose the price of iPhones goes from $1,000 to $1,200. Because of this, Apple sells only 1 million iPhones rather than 1.2 million iPhones. What is the elasticity of demand for iPhones?
11. Based on your answer to the previous question, is the demand for iPhones elastic or inelastic?
12. One week, Township sells 150 rum and cokes at a price of $5 per drink. Another week, Township sells 140 cokes at $6 per drink. What is the elasticity of demand for rum and cokes at Township?
13. Based on your answer to the previous question, is the demand for rum and cokes at Township elastic or inelastic?
14. FSU knows they can sell either 1,000 football jerseys at $120 or 850 football jerseys at $140. What is the elasticity of demand for FSU football jerseys?
15. Based on your answer to the previous question, is the demand for FSU football jerseys elastic or inelastic?
16. The market price for catnip drops from $4.50 to $4.00/pound. Before this price change 13,000 pounds are sold, but now they are only 9,750 pounds are sold. What is the elasticity of demand for catnip?
17. Based on your answer to the previous question, is the demand for catnip elastic or inelastic?
18. The price of Minute Maid lemonade increases from $2.40 to $3.00. Before this price change buyers were willing to purchase 114,867 bottles, but now they are only willing to purchase 89,123 bottles. What is the elasticity of demand for Minute Maid lemonade?
19. Based on your answer to the previous question, is the demand for Minute Maid lemonade elastic or inelastic?

Use the following graph of the demand for gum to answer questions 20-22.



20. Suppose gum is normally $1, but goes on sale for $0.75. What is the elasticity of demand for gum?
21. Suppose the price of gum increases from $1 to $1.25. What is the elasticity of demand for gum?
22. Suppose the price of gum goes from $1.25 to $0.75. What is the elasticity of demand for gum?

Use the following graph of Ann and Bob's demand for pens to answer questions 23-25.



23. The price of pens goes from $17 to $12. What is Bob's elasticity of demand?
24. The price of pens goes from $5 to $12. What is Ann's elasticity of demand?
25. Who has the more elastic demand, Ann or Bob?

26. Suppose all CEOs in the US make 50% more money this year than they did last year. This year, 20% more yachts are sold in the US. What is the income elasticity of demand for yachts? Are yachts a normal or inferior good? Assume only CEOs buy yachts in the US.

27. Tallahassee passes a bill which raises the income of all FSU and FAMU students by 5%. At the same time, FSU and FAMU students buy 25% less baked beans. What is the income elasticity of demand for baked beans? Are baked beans a normal or inferior good?

28. Printers go on sale for 15% off. At the same time, 25% fewer ink cartridges (for printers) are sold. What is the cross price elasticity of demand for ink cartridges? Are printers and ink cartridges substitutes or compliments in consumption?

29. Suppose the price of Gaines Street Pies's pizza increases by 15%. Because of this, Momo's sells 10% more pizza. What is the cross price elasticity of demand for Momo's pizza? Are Gaines Street Pies and Momo's pizza substitutes or compliments in consumption?

30. Suppose minimum wage increases from \$10 to \$15. At the same time, Walmart goes from selling 12,000 loafs of bread to 10,000 loafs. What is the income elasticity of demand for bread? Is this type of bread a normal or inferior good? Assume only people on minimum wage buy this type of bread from Walmart.

31. Tallahassee gives everyone between the ages of 18-25 \$1,000 this year. This causes the average income of individuals in this age group to go from \$30,000 to \$31,000. Because of this FSU's enrollment goes from 45,000 to 47,500 students. What is the income elasticity of demand for an FSU education? Is an FSU education a normal or inferior good?

32. Suppose the average price of an FSU football jersey goes from \$125 to \$150. At the same time, the number of FSU baseball jerseys sold goes from 500 a week to 600 a week. What is the cross price elasticity of demand for FSU baseball jerseys? Are FSU football and baseball jerseys substitutes or complimentary goods?

33. Suppose Recess drops their cover charge from \$10 to \$8. At the same time, vodka sales in Tallahassee go from 110 liters to 160 liters per day. What is the cross price elasticity of demand for vodka? Are vodka and going to Recess complementary or substitute goods?

Answers

1. Demand for the Whopper is more inelastic than the Big Mac. We can tell this from the graph since the demand curve for the whopper has a steeper slope. This is because a price change for the Whopper has a relatively small change in the quantity sold of Whoppers. Therefore the same price change in Big Macs would result in a larger change in quantity.

2. $E_D = \left|\frac{50}{-20}\right| = \frac{5}{2} = 2.5$

3. Since $E_D > 1$, the demand for Domino's pizza is elastic. This means that a 20% change in the price results in a change of quantity which is greater than 20% (in this case 50%).

4. $E_D = \left|\frac{5}{-25}\right| = \frac{1}{5} = 0.20$

5. Since $E_D < 1$, the demand for headphones is inelastic. This means that the price change (25%) is greater than the resulting quantity change (5%).

6. $E_D = \left|\frac{15}{15}\right| = 1$

7. Since $E_D = 1$, the demand for monitors is unit elastic. This means the quantity change will be the same as the price change. This is what happens in this case where both the price and quantity changes are 15%.

8. $E_D = \left|\frac{18}{-10}\right| = \frac{18}{10} = 1.8$

9. Since $E_D > 1$, the demand for refrigerators is elastic. Again, we see that the percentage change in quantity (18%) is greater than the percentage change in price (10%). This is the reason that demand is elastic.

10. $E_D = \left|\frac{\frac{1,000,000-1,200,000}{\frac{1,000,000+1,200,000}{2}} \times 100}{\frac{1,000-1,200}{\frac{1,000+1,200}{2}} \times 100}\right| = \left|\frac{\frac{1-1.2}{1+1.2}}{\frac{1-1.2}{1+1.2}}\right| = \frac{\frac{0.2}{2.2}}{\frac{0.2}{2.2}} = \frac{\frac{1}{11}}{\frac{1}{11}} = 1$

    Note: In the first fraction, you divide both the numerator and denominator by 2 and multiply each by 100. Since you do each to both the top and bottom these cancel each other out. Because of this, a simpler, but equivalent, way to find the elasticity of demand is presented below.

    $E_D = \left|\frac{\frac{1,000,000-1,200,000}{1,000,000+1,200,000}}{\frac{1,000-1,200}{1,000+1,200}}\right| == \left|\frac{\frac{1-1.2}{1+1.2}}{\frac{1-1.2}{1+1.2}}\right| = \frac{\frac{0.2}{2.2}}{\frac{0.2}{2.2}} = \frac{\frac{1}{11}}{\frac{1}{11}} = 1$

11. Since $E_D = 1$, this again means that the price and quantity changes are equal (in terms of percentage changes) and thus the demand for iPhones is unit elastic.

12. $E_D = \left|\frac{\frac{150-140}{\frac{150+140}{2}} \times 100}{\frac{5-6}{\frac{5+6}{2}} \times 100}\right| = \left|\frac{\frac{-10}{290}}{\frac{1}{11}}\right| = \frac{\frac{1}{29}}{\frac{1}{11}} = \frac{11}{29} \approx 0.38$

    Note: In the first fraction, you divide both the numerator and denominator by 2 and multiply each by 100. Since you do each to both the top and bottom these cancel each other out. Because of this, a simpler, but equivalent, way to find the elasticity of demand is presented below.

    $E_D = \left|\frac{\frac{150-140}{150+140}}{\frac{5-6}{5+6}}\right| = \left|\frac{\frac{-10}{290}}{\frac{1}{11}}\right| = \frac{\frac{1}{29}}{\frac{1}{11}} = \frac{11}{29} \approx 0.38$

    Going forward, I will always use this second, simpler method to find the elasticity of demand.

13. Since $E_D < 1$, the price change is greater than the quantity change and demand is inelastic. Here the price change is 9.1%, but the quantity change is 3.4%. This makes sense in this case since most people are probably buying rum and cokes late at night when they don't care about the price very much. Also, Township doesn't post their price for rum and coke so the only way for someone to know about this price change is to be very experiences or ask if the price has changed. Both of these are reasons why the demand for rum and cokes at Township is most likely inelastic.

14. $E_D = \left| \dfrac{\dfrac{1,000-850}{1,000+850}}{\dfrac{120-140}{120+140}} \right| = \dfrac{\dfrac{3}{37}}{\dfrac{1}{13}} = \dfrac{39}{37} \approx 1.05$

15. Since $E_D > 1$, the demand for FSU football jerseys is elastic. This means the quantity change is greater than the price change in FSU football jerseys.

16. $E_D = \left| \dfrac{\dfrac{9,750-13,000}{9,750+13,000}}{\dfrac{4.5-4}{4.5+4}} \right| = \dfrac{\dfrac{1}{7}}{\dfrac{1}{17}} = \dfrac{17}{7} \approx 2.43$

17. Since $E_D > 1$, the demand for catnip is elastic. This is because the change in quantity sold is greater than the change in the price. This is likely unrealistic since cat owners have to buy catnip for their cat. The cat cannot go very long without eating, so people will buy it regardless of the price of catnip.

18. $E_D = \left| \dfrac{\dfrac{89,123-114,867}{89,123+114,867}}{\dfrac{3-2.4}{3+2.4}} \right| = \dfrac{\dfrac{25,744}{203,990}}{\dfrac{0.6}{5.4}} = \dfrac{\dfrac{25,744}{203,990}}{\dfrac{1}{9}} \approx 1.14$

19. Since $E_D > 1$, the demand for Minute Maid lemonade is elastic. This is likely the case in real life since lemonade can be a substitute for many other drinks such as sweet tea. Thus as the price of Minute Maid decreases, the quantity of lemonade sold increases by more (in percentage terms) than the price decreased.

20. $E_D = \left| \dfrac{\dfrac{1,000-1,300}{1,000+1,300}}{\dfrac{1-0.75}{1+0.75}} \right| = \dfrac{\dfrac{3}{23}}{\dfrac{1}{7}} = \dfrac{21}{23} \approx 0.91$

21. $E_D = \left| \dfrac{\dfrac{700-1,000}{700+1,000}}{\dfrac{1.25-1}{1.25+1.25}} \right| = \dfrac{\dfrac{3}{17}}{\dfrac{1}{9}} = \dfrac{27}{17} \approx 1.59$

22. $E_D = \left| \dfrac{\dfrac{700-1,300}{700+1,300}}{\dfrac{1.25-0.75}{1.25+0.75}} \right| = \dfrac{\dfrac{3}{10}}{\dfrac{1}{4}} = \dfrac{12}{10} = 1.2$

23. $E_D = \left| \dfrac{\dfrac{8-10}{8+10}}{\dfrac{17-12}{17+12}} \right| = \dfrac{\dfrac{1}{9}}{\dfrac{5}{29}} = \dfrac{29}{45} = 0.6\overline{4}$

24. $E_D = \left| \dfrac{\dfrac{10-20}{10+20}}{\dfrac{12-5}{12+5}} \right| = \dfrac{\dfrac{1}{3}}{\dfrac{7}{17}} = \dfrac{17}{21} \approx 0.81$

25. Ann's demand is more elastic. There are a few ways to tell this.

    1) Ann's demand curve is much flatter than Bob's demand curve

    2) For each of the possible price changes, notice Ann changes her quantity demanded by more than Bob. For example, going from \$17 to \$12, Ann buys 4 more units while Bob only buys 2 more units. Another example, going from \$5 to \$17, Ann buys 14 fewer units while Bob buys only 7 fewer units.

    3) You calculated Ann and Bob's elasticity of demand (at certain points) in problems 20 and 21. Notice Ann's elasticity of demand (0.81) was greater than Bob's ($0.6\overline{4}$).

26. $E_I = \dfrac{50\%}{20\%} = 2.5 > 0$, so yachts are normal goods.

27. $E_I = \dfrac{-25\%}{5\%} = 5 < 0$, so baked beans are an inferior good.

28. $E_{CP} = \dfrac{-25\%}{15\%} = -\dfrac{5}{3} = -1.\overline{6} < 0$, so printers and ink cartridges are complimentary goods.

29. $E_{CP} = \dfrac{10\%}{15\%} = \dfrac{2}{3} = 0.\overline{6} > 0$, so these two establishments are substitutes in consumption.

30. $E_I = \dfrac{\dfrac{10,000 - 12,000}{10,000 + 12,000}}{\dfrac{15 - 10}{15 + 10}} = \dfrac{\dfrac{-2}{22}}{\dfrac{5}{25}} = \dfrac{\dfrac{1}{11}}{\dfrac{1}{5}} = \dfrac{5}{11} = -0.\overline{45} < 0$, so bread is an inferior good.

31. $E_I = \dfrac{\dfrac{47.5 - 45}{47.5 + 45}}{\dfrac{31 - 30}{31 + 30}} = \dfrac{\dfrac{2.5}{92.5}}{\dfrac{1}{61}} = \dfrac{\dfrac{1}{37}}{\dfrac{1}{61}} = \dfrac{61}{37} = 1.\overline{648} > 0$, so an FSU education is a normal good.

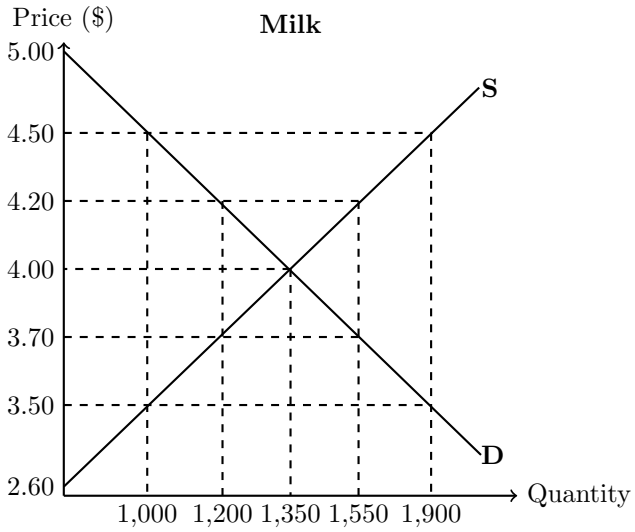
32. $E_{CP} = \dfrac{\dfrac{600 - 500}{600 + 500}}{\dfrac{150 - 125}{150 + 125}} = \dfrac{\dfrac{100}{11000}}{\dfrac{25}{275}} = \dfrac{\dfrac{1}{11}}{\dfrac{1}{11}} = 1 > 0$, so these are substitutes in consumption.

33. $E_{CP} = \dfrac{\dfrac{110 - 160}{110 + 160}}{\dfrac{10 - 8}{10 + 8}} = \dfrac{\dfrac{-50}{270}}{\dfrac{2}{18}} = \dfrac{\dfrac{-5}{27}}{\dfrac{1}{9}} = \dfrac{-5}{3} = -1.\overline{6} < 0$, so they are compliments in consumption.

Taxes and Subsidies

For more practice computing consumer and producer surplus, see supply and demand practice materials.

Use the following graph representing the market for milk to answer questions 1-16.

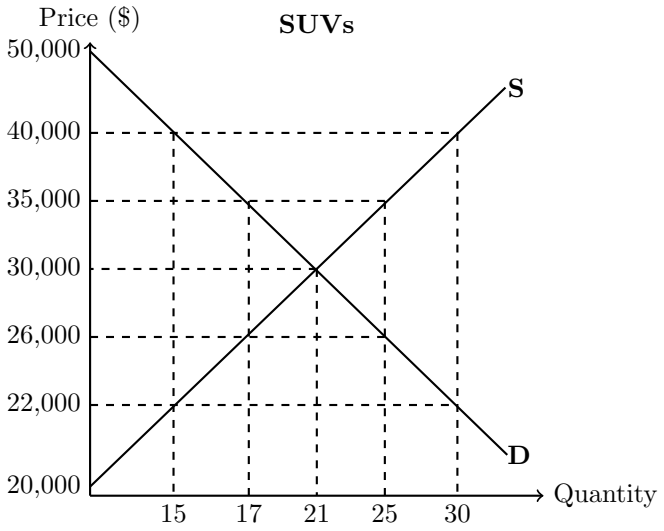


1. Suppose the government imposes a $0.50 tax per gallon of milk which is paid by consumers. Who has the statutory incidence? Who has the actual incidence?
2. Suppose the government imposes a $0.50 tax per gallon of milk which is paid by consumers. What is the new quantity which is transacted in this market? What is the quantity supplied and quantity demanded?
3. Suppose the government imposes a $0.50 tax per gallon of milk which is paid by consumers. What is the effective price that consumers pay for milk?
4. Suppose the government imposes a $0.50 tax per gallon of milk which is paid by consumers. What is the effective price that producers receive for milk?
5. Suppose the government imposes a $0.50 tax per gallon of milk which is paid by consumers. Are consumers made better or worse off, and by how much, due to this tax?
6. Suppose the government imposes a $0.50 tax per gallon of milk which is paid by consumers. Are producers made better or worse off, and by how much, due to this tax?
7. Suppose the government imposes a $0.50 tax per gallon of milk which is paid by consumers. How much tax revenue does this generate?
8. Suppose the government imposes a $0.50 tax per gallon of milk which is paid by consumers. How much of the tax revenue comes from consumers? How much comes from producers?
9. Suppose the government imposes a $0.50 tax per gallon of milk which is paid by consumers. What does the previous question tell us about the relative elasticity of demand and supply for milk?
10. Suppose the government imposes a $0.50 tax per gallon of milk which is paid by consumers. How much dead weight loss is generated due to this tax?
11. Suppose the government imposes a $1.00 tax per gallon of milk which is paid by consumers. What is the effective price that consumers pay for milk?
12. Suppose the government imposes a $1.00 tax per gallon of milk which is paid by consumers. What is the effective price that producers receive for milk?
13. Suppose the government imposes a $1.00 tax per gallon of milk which is paid by consumers. Are consumers made better or worse off, and by how much, due to this tax?
14. Suppose the government imposes a $1.00 tax per gallon of milk which is paid by consumers. Are producers made better or worse off, and by how much, due to this tax?

15. Suppose the government imposes a $1.00 tax per gallon of milk which is paid by consumers. How much tax revenue does this generate?

16. Suppose the government imposes a $1.00 tax per gallon of milk which is paid by consumers. How much dead weight loss is generated due to this tax?

Use the following graph representing the market for (new) SUVs to answer questions 17-35.



17. The government imposes a $18,000 tax on each SUV sold. This tax is to be paid by the supplier of new SUVs. Who has the statutory incidence? Who has the actual incidence?

18. The government imposes a $18,000 tax on each SUV sold. This tax is to be paid by the supplier of new SUVs. What is the new market quantity, quantity supplied, and quantity demanded?

19. The government imposes a $18,000 tax on each SUV sold. This tax is to be paid by the supplier of new SUVs. What is the effective price that consumers pay for a new SUV?

20. The government imposes a $18,000 tax on each SUV sold. This tax is to be paid by the supplier of new SUVs. What is the effective price that producers receive for a new SUV?

21. The government imposes a $18,000 tax on each SUV sold. This tax is to be paid by the supplier of new SUVs. How much worse off are consumers made because of the tax?

22. The government imposes a $18,000 tax on each SUV sold. This tax is to be paid by the supplier of new SUVs. How much worse off are producers made because of the tax?

23. The government imposes a $18,000 tax on each SUV sold. This tax is to be paid by the supplier of new SUVs. How much tax revenue does this generate?

24. The government imposes a $18,000 tax on each SUV sold. This tax is to be paid by the supplier of new SUVs. How much tax revenue comes from consumers? How much comes from producers?

25. The government imposes a $18,000 tax on each SUV sold. This tax is to be paid by the supplier of new SUVs. What does the previous question tell us about the relative elasticity of demand and supply for SUVs?

26. The government imposes a $18,000 tax on each SUV sold. This tax is to be paid by the supplier of new SUVs. How much dead weight loss is generated due to this tax?

27. The government enacts a $9,000 subsidy on each SUV sold. This subsidy goes to the consumers of SUVs in the form of a tax refund. What is the new market quantity, quantity supplied, and quantity demanded?

28. The government enacts a $9,000 subsidy on each SUV sold. This subsidy goes to the consumers of SUVs in the form of a tax refund. What is the effective price that consumers pay for a new SUV?

29. The government enacts a $9,000 subsidy on each SUV sold. This subsidy goes to the consumers of SUVs in the form of a tax refund. What is the effective price that producers receive for a new SUV?

30. The government enacts a $9,000 subsidy on each SUV sold. This subsidy goes to the consumers of SUVs in the form of a tax refund. How much better off are consumers made because of the subsidy?

31. The government enacts a $9,000 subsidy on each SUV sold. This subsidy goes to the consumers of SUVs in the form of a tax refund. How much better off are producers made because of the subsidy?

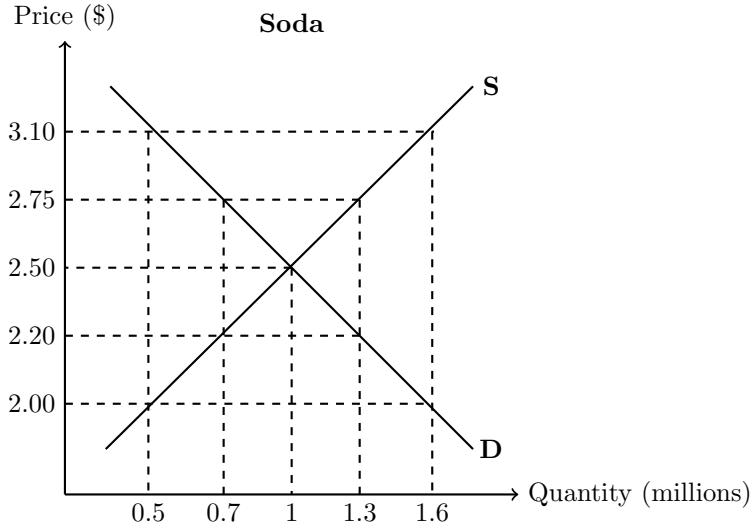
32. The government enacts a $9,000 subsidy on each SUV sold. This subsidy goes to the consumers of SUVs in the form of a tax refund. How much does this subsidy cost the government?

33. The government enacts a $9,000 subsidy on each SUV sold. This subsidy goes to the consumers of SUVs in the form of a tax refund. How much of the subsidy goes to consumers? How much of the subsidy goes to producers?

34. The government enacts a $9,000 subsidy on each SUV sold. This subsidy goes to the consumers of SUVs in the form of a tax refund. What does the previous question tell us about the relative elasticity of demand and supply for SUVs?

35. The government enacts a $9,000 subsidy on each SUV sold. This subsidy goes to the consumers of SUVs in the form of a tax refund. How much dead weight loss is generated due to this tax?

Use the following graph representing the market for soda to answer questions 36-50.



36. The government imposes a $1.10 tax on a can of soda sold. This tax is paid by consumers when they purchase a can of soda (similar to sales tax). Who has the statutory incidence? Who has the actual incidence?

37. The government imposes a $1.10 tax on a can of soda sold. This tax is paid by consumers when they purchase a can of soda (similar to sales tax). What is the new market quantity, quantity supplied, and quantity demanded?

38. The government imposes a $1.10 tax on a can of soda sold. This tax is paid by consumers when they purchase a can of soda (similar to sales tax). What is the effective price that consumers pay for a can of soda?

39. The government imposes a $1.10 tax on a can of soda sold. This tax is paid by consumers when they purchase a can of soda (similar to sales tax). What is the effective price that producers receive for a can of soda?

40. The government imposes a $1.10 tax on a can of soda sold. This tax is paid by consumers when they purchase a can of soda (similar to sales tax). How much tax revenue comes from this tax on soda?

41. The government imposes a $1.10 tax on a can of soda sold. This tax is paid by consumers when they purchase a can of soda (similar to sales tax). How much of this tax revenue comes from consumers? How much of this tax revenue comes from producers?

42. The government imposes a $1.10 tax on a can of soda sold. This tax is paid by consumers when they purchase a can of soda (similar to sales tax). What does the previous question tell us about the relative elasticity of demand and supply for soda?

43. The government imposes a $1.10 tax on a can of soda sold. This tax is paid by consumers when they purchase a can of soda (similar to sales tax). How much dead weight loss does this market have because of this tax?

44. The government enacts a $0.55 subsidy on a can of soda sold. This subsidy goes to the producers of soda. Who has the statutory incidence? Who has the actual incidence?

45. The government enacts a $0.55 subsidy on a can of soda sold. This subsidy goes to the producers of soda. What is the new market quantity, quantity supplied, and quantity demanded?

46. The government enacts a $0.55 subsidy on a can of soda sold. This subsidy goes to the producers of soda. What is the effective price that consumers pay for a can of soda?

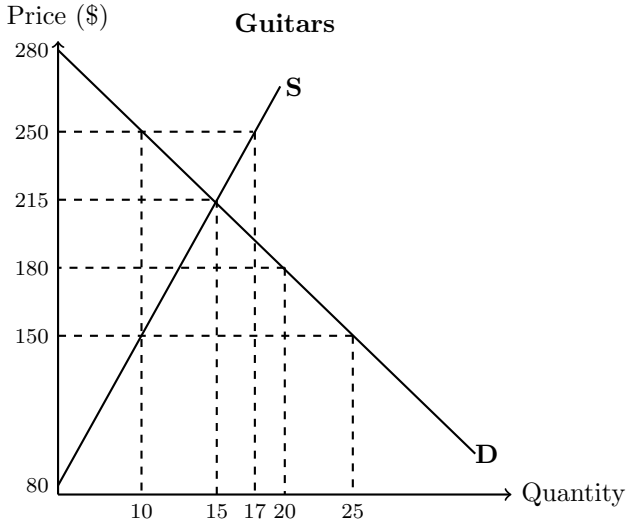
47. The government enacts a $0.55 subsidy on a can of soda sold. This subsidy goes to the producers of soda. What is the effective price that producers receive for a can of soda?

48. The government enacts a $0.55 subsidy on a can of soda sold. This subsidy goes to the producers of soda. How much does this soda subsidy cost the government?

49. The government enacts a $0.55 subsidy on a can of soda sold. This subsidy goes to the producers of soda. How much of this total subsidy goes to consumers? How much of this total subsidy goes to soda producers?

50. The government enacts a $0.55 subsidy on a can of soda sold. This subsidy goes to the producers of soda. How much dead weight loss does this market have because of this tax?

Use the following graph representing the market for fans to answer questions 51-56.



51. The government imposes a $100 tax on guitars which is paid by the consumer as additional taxes due when they file on April 15th. Who has the statutory incidence? Who has the actual incidence?

52. The government imposes a $100 tax on guitars which is paid by the consumer as additional taxes due when they file on April 15th. How many units will be transacted in this market after the tax has gone into effect?

53. The government imposes a $100 tax on guitars which is paid by the consumer as additional taxes due when they file on April 15th. How much worse off are consumers due to this tax? How much worse off are producers due to this tax?

54. The government imposes a $100 tax on guitars which is paid by the consumer as additional taxes due when they file on April 15th. How much tax revenue is generated? How much of this comes from consumers? How much of this comes from producers?

55. The government imposes a $100 tax on guitars which is paid by the consumer as additional taxes due when they file on April 15th. What does this tell us about the relative elasticity of supply and demand in the market for guitars?

56. The government imposes a $100 tax on guitars which is paid by the consumer as additional taxes due when they file on April 15th. How much dead weight loss is generated due to this tax?

Answers

1. Consumers (i.e. the demand side of the market) have the statutory incidence since they are the ones legally required to pay the tax. Both sides of the market (producers and consumers) have the actual incidence since both will pay a portion of the tax revenue (You solve for this in problem 8).
2. 1,200
3. \$4.20
4. \$3.70
5. $CS^e = \frac{1}{2} \times \$1 \times 1,350 = \$675$
   $CS^{tax} = \frac{1}{2} \times \$.80 \times 1,200 = \$480$
   $CS^e - CS^{tax} = \$675 - \$480 = \$195$ worse off
6. $PS^e = \frac{1}{2} \times \$1.40 \times 1,350 = \$945$
   $PS^{tax} = \frac{1}{2} \times \$1.10 \times 1,200 = \$660$
   $PS^e - PS^{tax} = \$945 - \$660 = \$285$ worse off
7. $\$0.50 \times 1,200 = \$600$ in tax revenue
8. $\$0.20 \times 1,200 = \$240$ comes from consumers
   $\$0.30 \times 1,200 = \$360$ comes from producers
9. Since the producers pay more in tax revenue, we know that the demand for milk is more elastic than the supply of milk.
10. $DWL = \frac{1}{2} \times \$0.50 \times 150 = \$37.50$
11. \$4.50
12. \$3.50
13. $CS^e = \frac{1}{2} \times \$1 \times 1,350 = \$675$
    $CS^{tax} = \frac{1}{2} \times \$.50 \times 1,000 = \$250$
    $CS^e - CS^{tax} = \$675 - \$250 = \$425$ worse off
14. $PS^e = \frac{1}{2} \times \$1.40 \times 1,350 = \$945$
    $PS^{tax} = \frac{1}{2} \times \$0.90 \times 1,000 = \$450$
    $PS^e - PS^{tax} = \$945 - \$450 = \$495$ worse off
15. $\$1 \times 1,000 = \$1,000$ in tax revenue
16. $DWL = \frac{1}{2} \times \$1 \times 350 = \$175$
17. The suppliers of SUVs (car companies) have the statutory incidence since they are the ones legally required to pay the tax. Both consumers and producers have the actual incidence of this tax since both sides of the market will change their actions due to this tax.
18. Market Quantity (Q^*): 15
    Quantity Supplied (Q_s): 15
    Quantity Demanded (Q_d): 15
19. \$40,000
20. \$22,000
21. $CS^e = \frac{1}{2} \times \$20,000 \times 21 = \$210,000$
    $CS^{tax} = \frac{1}{2} \times \$10,000 \times 15 = \$75,000$
    $CS^e - CS^{tax} = \$210,000 - \$75,000 = \$135,000$ worse off
22. $PS^e = \frac{1}{2} \times \$10,000 \times 21 = \$105,000$
    $PS^{tax} = \frac{1}{2} \times \$2,000 \times 15 = \$15,000$
    $PS^e - PS^{tax} = \$105,000 - \$15,000 = \$90,000$ worse off

23. $\$18,000 \times 15 = \$270,000$ in tax revenue

24. $\$10,000 \times 15 = \$150,000$ of tax revenue comes from consumers
    $\$8,000 \times 15 = \$120,000$ of tax revenue comes from producers

25. Since consumers pay more of the tax, this means that the demand is more inelastic than the supply of SUVs.

26. $DWL = \frac{1}{2} \times 9,000 \times 4 = \$18,000$

27. Market Quantity (Q^*): 25
    Quantity Supplied (Q_s): 25
    Quantity Demanded (Q_d): 25

28. \$26,000

29. \$35,000

30. $CS^e = \frac{1}{2} \times \$20,000 \times 21 = \$210,000$
    $CS^{subsidy} = \frac{1}{2} \times \$24,000 \times 25 = \$300,000$
    $CS^{subsidy} - CS^e = \$300,000 - \$210,000 = \$90,000$ better off

31. $PS^e = \frac{1}{2} \times \$10,000 \times 21 = \$105,000$
    $PS^{subsidy} = \frac{1}{2} \times \$15,000 \times 25 = \$187,500$
    $PS^{subsidy} - PS^e = \$187,500 - \$105,000 = \$82,500$ better off

32. $\$9,000 \times 25 = \$225,000$ cost to the government

33. $\$4,000 \times 25 = \$100,000$ goes to the consumers of SUVs
    $\$5,000 \times 25 = \$125,000$ goes to the producers of SUVs

34. Since most of the money went to the the producers, supply is more inelastic than demand in this market.

35. $DWL = \frac{1}{2} \times \$9,000 \times 4 = \$18,000$

36. Consumers have the statutory incidence for this tax since they have the legal responsibility to pay the tax. Both consumers and producers of soda have actual incidence of this tax since both will be hurt by the tax.

37. Market Quantity (Q^*): 0.5 million
    Quantity Supplied (Q_s): 0.5 million
    Quantity Demanded (Q_d): 0.5 million

38. \$3.10

39. \$2.00

40. $\$1.10 \times 0.5 = \$0.55$ million in tax revenue

41. $\$0.60 \times 0.5 = \$0.3$ million in tax revenue from consumers
    $\$0.5 \times 0.5 = \$0.25$ million in tax revenue from producers

42. The demand for soda is more inelastic since it pays more of this tax.

43. $DWL = \frac{1}{2} \times \$1.10 \times 0.6 = \$0.33$ million

44. The producers of soda have the statutory incidence since they receive the subsidy, but both producers and consumers have the actual incidence since both will be benefited by the subsidy.

45. Market Quantity (Q^*): 1.3 million
    Quantity Supplied (Q_s): 1.3 million
    Quantity Demanded (Q_d): 1.3 million

46. \$2.20

47. \$2.75

48. $\$0.55 \times 1.3 = \$0.715$ million

49. $\$0.25 \times 1.3 = \$0.325$ million goes to consumers

    $\$0.30 \times 1.3 = \$0.39$ million goes to producers

50. $DWL = \frac{1}{2} \times \$0.55 \times 0.6 = \$0.165$ million

51. The consumer has the statutory incidence of this tax since they are the one required to pay it. Both consumers and producers of guitars will bear the actual incidence since they will have to bear the burden of the tax.

52. 10 units

53. $CS^e = \frac{1}{2} \times \$65 \times 15 = \$487.50$

    $CS^{tax} = \frac{1}{2} \times \$30 \times 10 = \$150$

    $CS^e - CS^{tax} = \$487.50 - \$150 = \$337.50$ worse off (consumers)

    $PS^e = \frac{1}{2} \times \$135 \times 15 = \$1,012.50$

    $PS^{tax} = \frac{1}{2} \times \$70 \times 10 = \$350$

    $PS^e - PS^{tax} = \$1,012.50 - \$350 = \$662.50$ worse off (producers)

54. $\$100 \times 10 = \$1,000$ in tax revenue is generated

    $\$45 \times 10 = \$450$ comes from consumers

    $\$55 \times 10 = \$550$ comes from producers

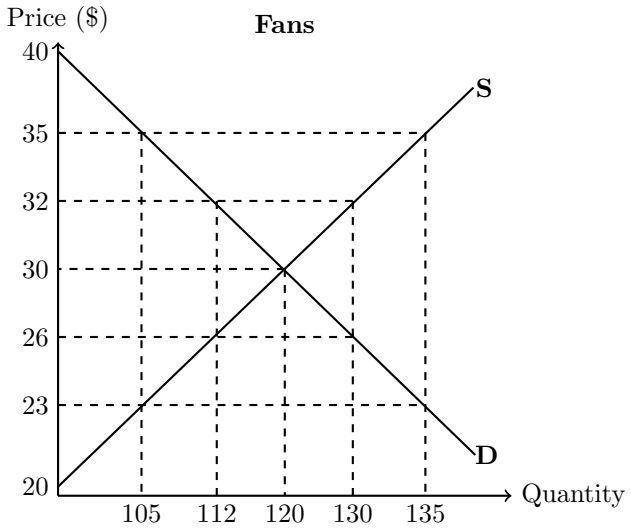
55. Since more of the actual incidence is on producers (i.e. they pay more of the tax), supply is more inelastic than demand in this market. Notice that you can actually see this in the graph representing this market.

56. $DWL = \frac{1}{2} \times \$100 \times 15 = \$750$

Price Controls

For more practice computing consumer and producer surplus, see supply and demand practice materials.

Use the following graph representing the market for fans to answer questions 1-18.



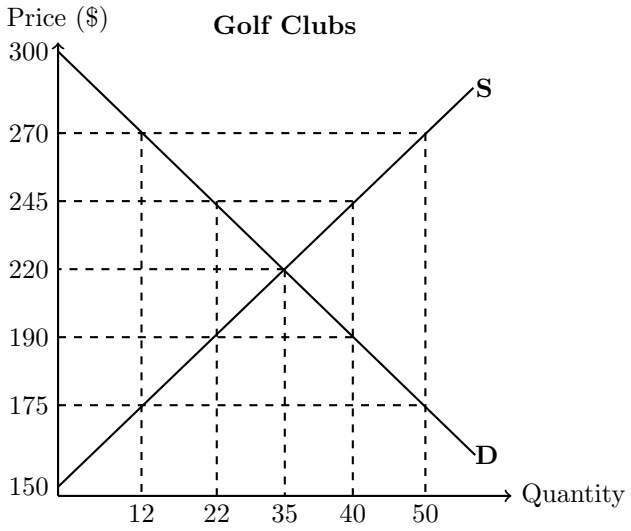
1. Suppose the government implements a price ceiling of $26 in the market for fans. Would this price ceiling bind? Why?
2. Suppose the government implements a price ceiling of $35 in the market for fans. Would this price ceiling bind? Why?
3. Suppose the government implements a price floor of $23 in the market for fans. Would this price floor bind? Why?
4. Suppose the government implements a price floor of $31 in the market for fans. Would this price floor bind? Why?
5. Are consumers made better off or worse off, and by how much, if the government implements a $32 price ceiling?
6. Are producers made better off or worse off, and by how much, if the government implements a $32 price ceiling?
7. Are consumers made better off or worse off, and by how much, if the government implements a $23 price ceiling?
8. Are producers made better off or worse off, and by how much, if the government implements a $23 price ceiling?
9. If the government cares only about consumers, should they implement this price ceiling at $23? What about if they only care about producers?
10. How much dead weight loss would be created by a $23 price ceiling?
11. Are consumers made better off or worse off, and by how much, if the government implements a $35 price floor?
12. Are producers made better off or worse off, and by how much, if the government implements a $35 price floor?
13. If the government cares only about consumers, should they implement this price floor at $35? What about if they only care about producers?
14. How much dead weight loss would be created by a $35 price floor?
15. Are consumers made better off or worse off, and by how much, if the government implements a $32 price floor?

16. Are producers made better off or worse off, and by how much, if the government implements a $32 price floor?

17. If the government cares only about consumers, should they implement this price floor at $32? What about if they only care about producers?

18. How much dead weight loss would be created by a $32 price floor?

Use the following graph representing the market for golf clubs to answer questions 19-39.



19. Are consumers made better off or worse off, and by how much, if the government implements a $175 price ceiling?

20. If the government implements a $175 price ceiling, which consumers are made better off? Which consumers are made worse off?

21. Are producers made better off or worse off, and by how much, if the government implements a $175 price ceiling?

22. If the government cares only about consumers, should they implement this price ceiling at $175? What about if they only care about producers?

23. How much dead weight loss would be created by a $175 price ceiling?

24. If the government implements a price ceiling of $190, how many units will producers want to supply (i.e. quantity supplied)? How many units will consumers want to buy (i.e. quantity demanded)? How many golf clubs will be sold in this market?

25. Are consumers made better off or worse off, and by how much, if the government implements a $190 price ceiling?

26. Are producers made better off or worse off, and by how much, if the government implements a $190 price ceiling?

27. If the government cares only about consumers, should they implement this price ceiling at $190? What about if they only care about producers?

28. How much dead weight loss would be created by a $190 price ceiling?

29. Are consumers made better off or worse off, and by how much, if the government implements a $245 price floor?

30. If the government implements a $245 price floor, which consumers are made better off? Which consumers are made worse off?

31. Are producers made better off or worse off, and by how much, if the government implements a $245 price floor?

32. If the government implements a $245 price floor, which producers are made better off? Which producers are made worse off?

33. If the government cares only about consumers, should they implement this price floor at $245? What about if they only care about producers?

34. How much dead weight loss would be created by a $245 price floor?

35. If the government implements a price floor of $270, how many units will producers want to supply (i.e. quantity supplied)? How many units will consumers want to buy (i.e. quantity demanded)? How many golf clubs will be sold in this market?

36. Are consumers made better off or worse off, and by how much, if the government implements a $270 price floor?

37. Are producers made better off or worse off, and by how much, if the government implements a $270 price floor?

38. If the government cares only about consumers, should they implement this price floor at $270? What about if they only care about producers?

39. How much dead weight loss would be created by a $270 price floor?

Answers

1. Yes a price ceiling of \$26 would bind. This is because \$26 is less than the equilibrium price of \$30 and so the market would be affected since the highest that producers could charge is \$26. This would cause the market to operate in a shortage. These are all equivalent ways to find that this price ceiling would bind.

2. No, a \$35 price ceiling would not bind since it is greater than the market/equilibrium price of \$30. Thus if the government says producers can't charge more than \$35, they will continue charging \$30 as they were before since it is less than \$35.

3. No, a \$23 price floor would not bind since it is below the equilibrium price in this market (\$30). Thus producers will continue charging \$30 since it is above the price floor of \$23. This means the market will continue on at equilibrium as if the price floor was never enacted. Thus the price floor of \$23 is non-binding (i.e. doesn't bind).

4. Yes a \$31 price floor will bind. This is because the price floor is above the equilibrium price which is being charged before the price floor is enacted. Once the government passes this \$31 price floor, producers will not be able to charge less than \$31 even though they want to. This will result in the market price going up to \$31 and the market being in a surplus.

   Before solving the remaining problems, we must first solve for consumer and producer surplus at equilibrium. These are shown below.

   $CS = \frac{1}{2} \times 10 \times 120 = \$600$

   $PS = \frac{1}{2} \times 10 \times 120 = \$600$

5. Consumers are not affected by this since a \$32 price ceiling is non-binding! This is because \$32 is greater than the market price of \$30 and so the market will remain in equilibrium.

6. Producers are not affected by this since a \$32 price ceiling is non-binding! This is because \$32 is greater than the market price of \$30 and so the market will remain in equilibrium.

7. $CS = \frac{1}{2} \times (17 + 12) \times 105 = \$1,522.50$

   $\$1,522.50 - \$600 = \$922.50$ better off

8. $PS = \frac{1}{2} \times 3 \times 105 = \$157.50$

   $\$600 - \$157.50 = \$442.50$ worse off

9. If the government cares only about making consumers better off, then they should implement this price ceiling since it increases their consumer surplus. If the government cares only about producers, then they should not implement this since it reduces producer surplus (i.e. makes producers worse off).

10. $DWL = \frac{1}{2} \times 12 \times 15 = \$90$

11. $CS = \frac{1}{2} \times 5 \times 105 = \$262.50$

    $\$600 - \$262.50 = \$337.50$ worse off

12. $PS = \frac{1}{2} \times (15 + 12) \times 105 = \$1,417.50$

    $\$1,417.50 - \$600 = \$817.50$ better off

13. If the government just wants to make consumers as well off as possible, then no they should not implement this price floor since it makes them worse off. We can see this in the reduction in consumer surplus. If the government wants to make producers as well off as possible, then they should implement this since it increases their producer surplus (i.e. they are made better off).

14. $DWL = \frac{1}{2} \times 12 \times 15 = \$90$ (Notice this is the same as the DWL at \$23.)

15. $CS = \frac{1}{2} \times 8 \times 112 = \$448$

    $\$600 - \$448 = \$152$ worse off

16. $PS = \frac{1}{2} \times (12 + 6) \times 112 = \$1,008$

    $\$1,008 - \$600 = \$408$ better off

17. If the government wants to make consumers better off, then they would not implement this price floor since it reduces their consumer surplus. If they want to make producers better off, then they would implement this prie floor since it increases producer surplus. Notice it makes producers better off, but makes the market less efficient since there is now dead weight loss. This is the tradeoff of any price control which binds.

18. $DWL = \frac{1}{2} \times 6 \times 18 = \$54$

    Before solving the remaining problems, we must first solve for consumer and producer surplus at equilibrium. These are shown below.

    $CS = \frac{1}{2} \times 80 \times 35 = \$1,400$

    $PS = \frac{1}{2} \times 70 \times 35 = \$1,225$

19. $CS = \frac{1}{2} \times (125 + 95) \times 12 = \$1,320$

    $\$1,400 - 1,320 = \$80$ worse off

20. Consumers who could buy golf clubs at the lower price ($175) would be made better off than when the market is in equilibrium. Consumers who wanted to buy at the equilibrium price, but who now can't at the lower price are made worse off. Notice there are 23 of these consumers who would've paid $220, but cannot buy at $175 since not enough are produced. Since we found this policy to reduce consumer surplus, we know that the negative effect is larger than the positive effect.

21. $PS = \frac{1}{2} \times 75 \times 12 = \$150$

    $\$1,225 - \$150 = \$1,075$ worse off

22. If the government only cares about consumers, then they shouldn't implement this price ceiling since it reduces consumer surplus. If they only care about producers, then they still shouldn't implement this price ceiling since it reduces producer surplus. Notice this would be an all around bad policy in this case. It makes consumers and producers worse off and the market would be less efficient. The government should never implement a policy like this.

23. $DWL = \frac{1}{2} \times 95 \times 13 = \$617.50$

24. With a $190 price ceiling, the market will operate in a shortage since the price ceiling binds. This means the quantity supplied will be 22 and quantity supplied will be 40. As always, the market quantity is the least of these two, so the market quantity is 22 under a $190 price ceiling.

25. $CS = \frac{1}{2} \times (55 + 10) \times 22 = \$1,815$

    $\$1,815 - \$1,400 = \$415$ better off

26. $PS = \frac{1}{2} \times 40 \times 22 = \$440$

    $\$1,225 - \$440 = \$785$ worse off

27. If the government only cares about the effect to consumers, then they should put this price ceiling in place since it increases consumer surplus. If the government cares only about producers then they shouldn't enact such a policy since it hurts producers.

28. $DWL = \frac{1}{2} \times 55 \times 13 = \$357.50$

29. $CS = \frac{1}{2} \times 55 \times 22 = \$605$

    $\$1,400 - \$605 = \$795$ worse off

30. In this case no consumers are made better off. The consumers who would've bought golf clubs at the equilibrium price of $220, but won't at the new price of $245 are made worse off. This is because these consumers used to get golf clubs, but now they are too expensive and these consumers choose not to buy them at the higher price. No consumers are made better off since the consumers who still get golf clubs are just paying more than they were paying before. Thus even the consumers who still buy golf clubs are also made worse off because of this price floor.

31. $PS = \frac{1}{2} \times (95 + 70) \times 22 = \$1,815$

    $\$1,815 - \$1,225 = \$590$ better off

32. Producers who can still sell units at the higher price are made better off since people are paying more for the same product. Producers who could've sold golf clubs at the lower price, but now can't at the higher price are made worse off since they are not selling any golf clubs now. We know this is an overall positive effect on producers since producer surplus increases. Thus the positive effect of selling at a higher price is greater than the negative effect of selling fewer units.

33. If the government cares only about consumers then they will not enact this since it reduces consumer surplus. The opposite is true for producer surplus, so the government would enact this price floor if all they care about is increasing producer surplus.

34. $DWL = \frac{1}{2} \times 55 \times 13 = \$357.50$ (Notice this is the same as at a price ceiling of \$190)

35. A \$270 price floor would create a surplus in this market. The new quantity supplied would be 50 and quantity demanded would decrease from 35 to 12. As always, the market quantity would be the lesser of these two, so 12 units would be transacted (i.e. sold).

36. $CS = \frac{1}{2} \times 30 \times 12 = \$180$

    $\$1,400 - \$180 = \$1,220$ worse off

37. $PS = \frac{1}{2} \times (120 + 95) \times 12 = \$1,290$

    $\$1,290 - \$1,225 = \$65$ worse off

38. The government should not implement this price floor if they only care about consumers, nor should they if they only care about producers. This is because this price floor causes a reduction in both producer and consumer surplus. Thus both of these groups are made worse off than they were at equilibrium. Also, this price floor causes dead weight loss which is another negative of this policy.

39. $DWL = \frac{1}{2} \times 95 \times 23 = \$1,092.50$

Costs

Use the following information below to answer questions 1-6.

Andy is deciding between opening a video game store or continuing his job as a golf instructor. Currently, he has total revenue of $80,000 a year from giving golf lessons. He also has expenses of being a golf instructor equal to $10,000 a year. Andy believes he could have revenue of $250,000 and expenses equal to $200,000 a year if he were to open a game store.

1. What is Andy's accounting profit of giving golf lessons?
2. What would be Andy's accounting profit if he were to open the video game store?
3. What is Andy's opportunity cost of giving golf lessons?
4. What is Andy's opportunity cost of opening the video game store?
5. What is Andy's economic profit (π) of giving golf lessons?
6. What would be Andy's economic profit (π) if he were to open the video game store?

Use Table 1 below to answer questions 7-15.

Table 1

Q	TFC	TVC	TC	MC	AFC	AVC	ATC
0				–	–	–	–
1				80			
2		130					
3							106.7
4						50.0	
5				40			
6		300					
7	150	380					
8							78.8
9			760				
10						77.0	

7. Complete the entire table.
8. What is the total cost to produce 4 units?
9. What is the marginal cost of the 8th unit?
10. What is the (total) variable cost of 0 units?
11. What is the average fixed cost of producing 10 units?
12. What is the marginal cost of the 3rd unit?
13. What is the average variable cost to produce 2 units?
14. What is the (total) variable cost of producing 10 units?
15. What is the average fixed cost to produce 2 units?

Use Table 2 below to answer questions 16-26.

Table 2

Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR
0				–	–	–	–	–	
1			340						110
2				70					220
3							153.3		330
4						65			440
5		330							550
6				110					660
7						81.4			770
8			980						880
9		920							990
10	250						139		1100

16. Complete the entire table.
17. What is the marginal cost of the first unit?
18. What is the average total cost to produce 6 units?
19. What is the average fixed cost of 9 units?
20. What is the marginal revenue of the first unit?
21. What is the (total) fixed cost of 7 units?
22. What is the (total) variable cost to produce two units?
23. What is the marginal cost of the 8th unit?
24. What is the marginal revenue of the 6th unit?
25. How many units will this firm produce?
26. What price is this firm charging?

Use Table 3 to answer questions 27-28.

Table 3

Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR
0			0	–	–	–	–	–	0
1		100							100
2				80				100	
3			240					100	
4						75		100	
5							80	100	
6				120				100	
7		660						100	
8			820					100	
9							112.2	100	
10						123		100	

27. Complete the entire table.
28. What is the (total) fixed cost of one unit?
29. Do you notice anything unusual about this firm?
30. What is the marginal cost of the 4th unit?
31. What is the total cost of producing ten units?
32. What is the average fixed cost of producing 7 units?
33. What is the average total cost of producing 2 units?
34. What is the marginal revenue of the first unit?
35. What is the total revenue of producing 7 units?
36. What quantity will this firm supply?
37. What price will this firm charge for their goods?
38. How much in sales (total revenue) will this firm have?

Use Table 4 below to answer questions 39-51.

Table 4

Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	Profit
0	200			–	–	–	–	–		
1				80				100		
2										-140
3		180				60			300	
4						55				
5							98	100		
6			560					100		
7		470							700	
8							101.3			-10
9		790							900	-90
10				1210				100		

39. Complete the entire table.
40. What is the average fixed cost of 1 unit?
41. What is the total cost of 2 units?
42. What is the (total) fixed cost of 10 units?
43. What is the marginal revenue of the 3rd unit?
44. What is the profit of producing 0 units?
45. What is the average fixed cost of producing 9 units?
46. What is the average total cost of producing 2 units?
47. What quantity will this firm supply?
48. What price will this firm charge for their goods?
49. How much in sales will this firm have?
50. What will this firm's profit be?
51. Is your answer to question 50 in accounting profit or economic profit?

Answers

1. $70,000
2. $50,000
3. $50,000
4. $80,000
5. $30,000
6. -$30,000
7. Answers to the table are below.

Table 1 Answered

Q	TFC	TVC	TC	MC	AFC	AVC	ATC
0	150	0	150	–	–	–	–
1	150	80	230	80	150.0	80.0	230.0
2	150	130	280	50	75.0	65.0	140.0
3	150	170	320	40	50.0	56.7	106.7
4	150	200	350	30	37.5	50.0	87.5
5	150	240	390	40	30.0	48.0	78.0
6	150	300	450	60	25.0	50.0	75.0
7	150	380	530	80	21.4	54.3	75.7
8	150	480	630	100	18.8	60.0	78.8
9	150	610	760	130	16.7	67.8	84.4
10	150	770	920	160	15.0	77.0	92.0

8. $350
9. $100
10. $0
11. $15
12. $40
13. $80
14. $770
15. $150

16. Answers to the table are below.

Table 2 Answered

Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR
0	250	0	250	–	–	–	–	–	0
1	250	90	340	90	250	90	340	110	110
2	250	160	410	70	125	80	205	110	220
3	250	210	460	50	83.3	70	153.3	110	330
4	250	260	510	50	62.5	65	127.5	110	440
5	250	330	580	70	50	66	116	110	550
6	250	440	690	110	41.7	73.3	115	110	660
7	250	570	820	130	35.7	81.4	117.1	110	770
8	250	730	980	160	31.3	91.3	122.5	110	880
9	250	920	1170	190	27.8	102.2	130	110	990
10	250	1140	1390	220	25	114	139	110	1100

17. $90
18. $115
19. $27.8
20. $110
21. $250
22. $160
23. $160
24. $110
25. 6 unis since this is the quantity in which marginal cost equals marginal revenue.
26. This firm is charging $110 per unit. Notice that the marginal revenue is $110 for every unit. Since revenue is increasing by $110 for each unit, this must be what they are charging.

27. Answers to the table are below.

Table 3 Answered

Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR
0	0	0	0	–	–	–	–	–	0
1	0	100	100	100	0	100	100	100	100
2	0	180	180	80	0	90	90	100	200
3	0	240	240	60	0	80	80	100	300
4	0	300	300	60	0	75	75	100	400
5	0	400	400	100	0	80	80	100	500
6	0	520	520	120	0	86.7	86.7	100	600
7	0	660	660	140	0	94.3	94.3	100	700
8	0	820	820	160	0	102.5	102.5	100	800
9	0	1010	1010	190	0	112.2	112.2	100	900
10	0	1230	1230	220	0	123	123	100	1000

28. $0
29. This firm has no fixed costs!
30. $60
31. $1,230
32. $0
33. $90
34. $100
35. $700
36. 5 units
37. $100 since this firm charges $100 for each unit not matter how much they sell. This means this firm is a price taker and thus is subject to perfect competition.
38. $500

39. Answers to the table are below.

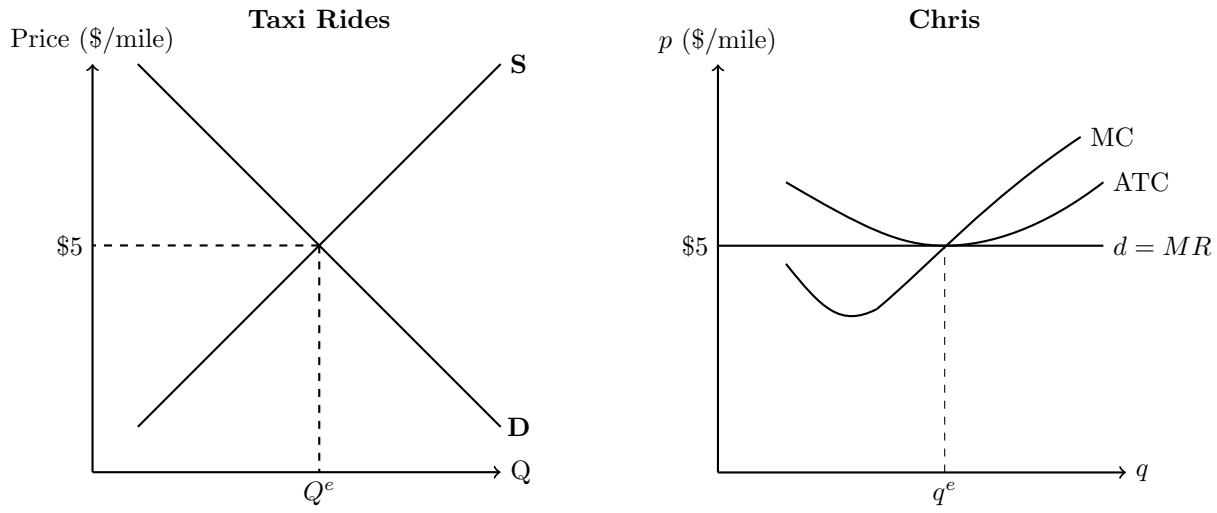
Table 4 Answered

Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	Profit
0	200	0	200	–	–	–	–	–	0	-200
1	200	80	280	80	200	80	280	100	100	-180
2	200	140	340	60	100	70	170	100	200	-140
3	200	180	380	40	66.7	60	126.7	100	300	-80
4	200	220	420	40	50	55	105	100	400	-20
5	200	290	490	70	40	58	98	100	500	10
6	200	360	560	100	33.3	60	93.3	100	600	40
7	200	470	670	110	28.6	67.1	95.7	100	700	30
8	200	610	810	140	25	76.3	101.3	100	800	-10
9	200	790	990	180	22.2	87.8	110	100	900	-90
10	200	1010	1210	220	20	101	121	100	1000	-210

40. $200
41. $280
42. $200
43. $100
44. -$200
45. $22.2
46. $10
47. 6 since this is where MC = MR
48. $100
49. $600
50. $40
51. Economic profit! Thus this firm is not taking home only $40 at the end of the day. They are making $40 more than what they would producing their next best good.

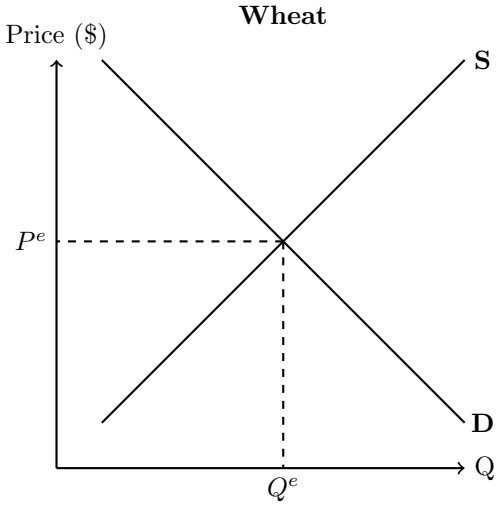
Perfect Competition

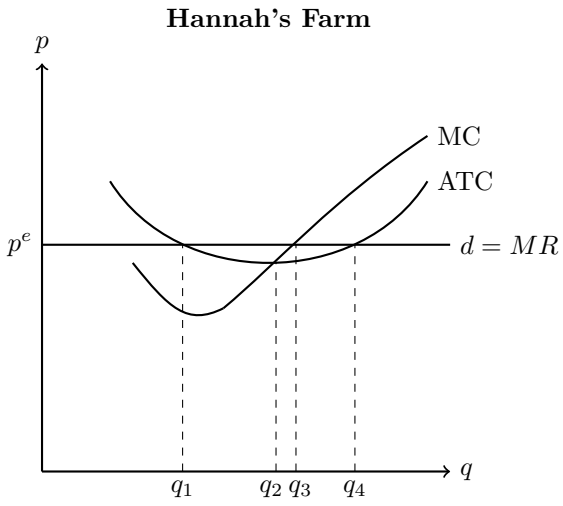
Use the following graphs representing the market for taxi rides in New York City and Chris's costs for questions 1-12. Chris is a taxi driver in New York City.



1. Is the market price for taxi rides less than, more than, or equal to $5 per mile?
2. How many taxi rides will be transacted in New York City?
3. How much will Chris charge for tax rides (per mile)?
4. Why will Chris charge the amount you answered to question 3?
5. How many taxi rides will Chris supply?
6. Why will Chris supply the amount you answered to question 5?
7. What is Chris's economic profit?
8. Should Chris continue being a taxi driver in New York City?
9. What will happen in this market in the long-run?
10. What will happen to Chris's economic profit in the long run?
11. Suppose the price of Ubers and Lyfts decreases dramatically. What are the short-run and long-run effects of this on the market for taxi rides as well as taxi drivers, such as Chris?
12. Suppose people begin walking more in New York City. What are the short-run and long-run effects of this on the market for taxi rides as well as taxi drivers, such as Chris?

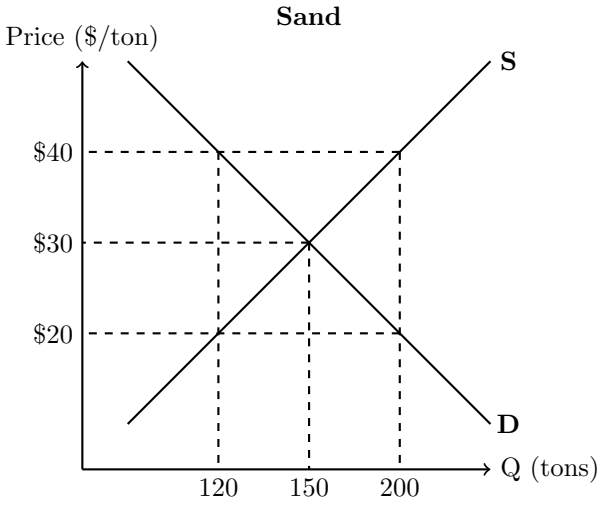
Use the following graphs representing the market for wheat as well as Hannah's farm which solely supplies wheat to answer questions 13-22.

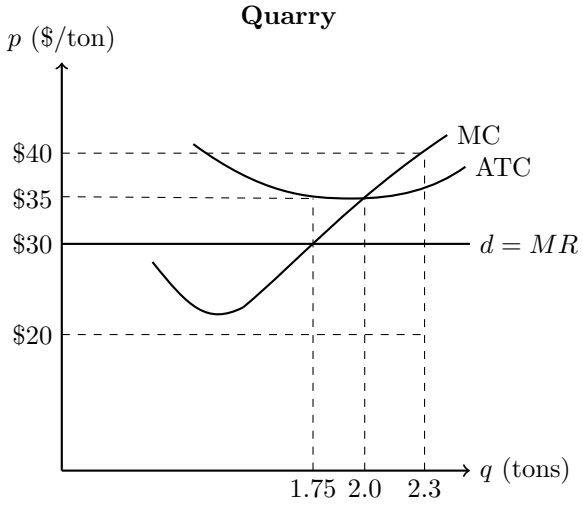




13. What is the market price for wheat?
14. What is the market quantity for wheat?
15. How much wheat will Hannah supply?
16. Why will Hannah supply the amount you answered to question 14?
17. What price will Hannah charge for her wheat?
18. Why will Hannah charge the price you answered to question 16?
19. Why won't Hannah supply q_2 if it is the quantity that has the lowest average cost?
20. Does Hannah have positive economic profit?
21. Should Hannah stay in business?
22. What will happen in the market for wheat in the long-run? How will this affect Hannah's farm?

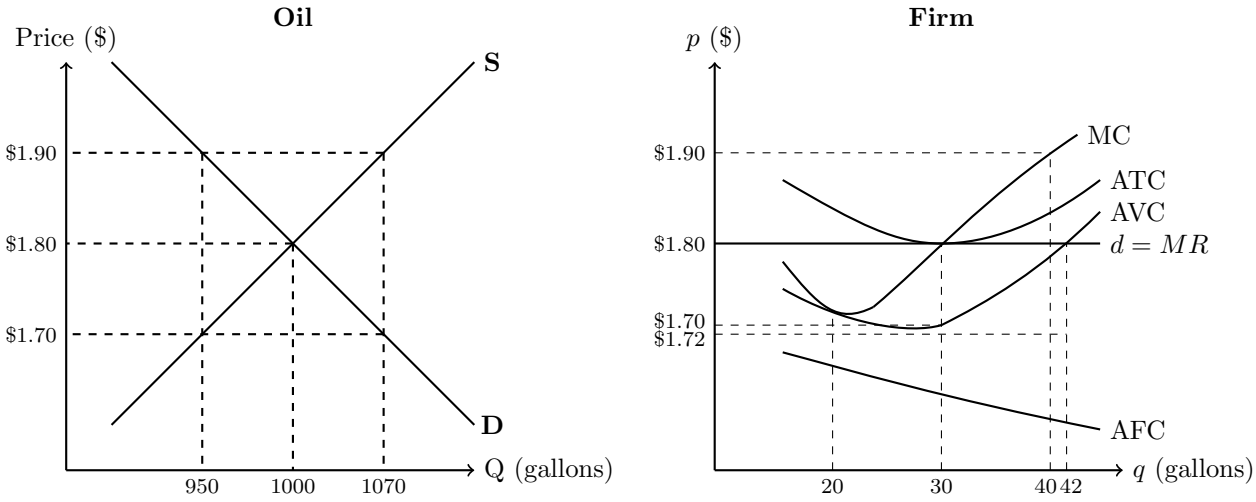
Use the following graphs representing the market for sand as well as the costs of a local quarry, which extracts stone and produces sand from it, to answer questions 23-31.





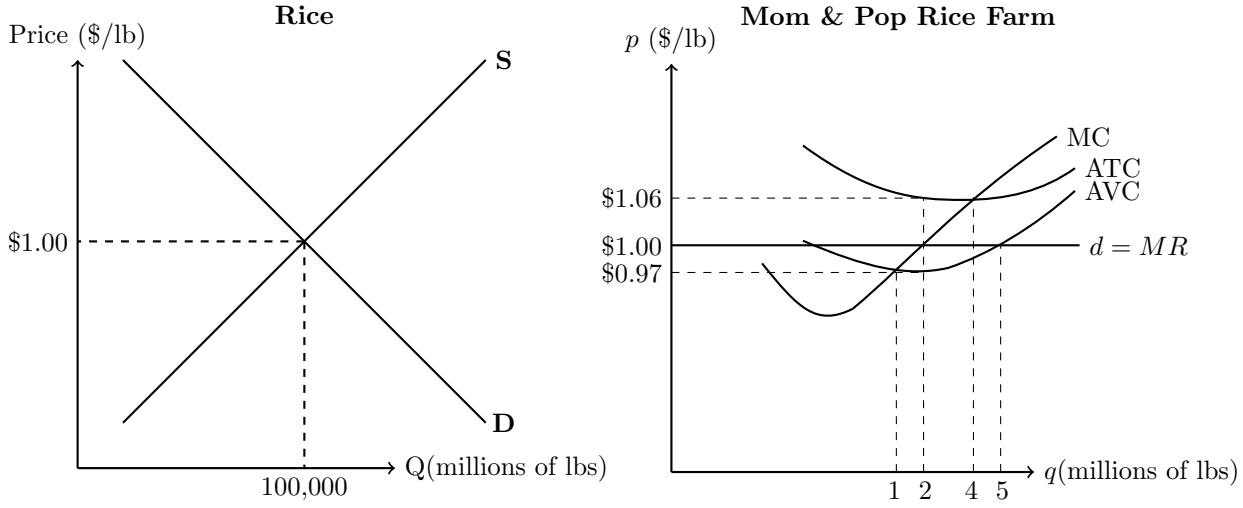
23. What is the market price for sand?
24. What is the market quantity for sand?
25. How much sand will this quarry supply?
26. Why will this quarry supply the amount you answered to question 25?
27. What price will this quarry charge for their sand?
28. Why will this quarry charge the price you answered to question 27?
29. What is this quarry's economic profit?
30. Should this quarry stay in business?
31. What will happen in this market in the long-run? How will this affect the quarry?

Use the following graph representing the oil market as well as a producer of oil to answer questions 32-43.



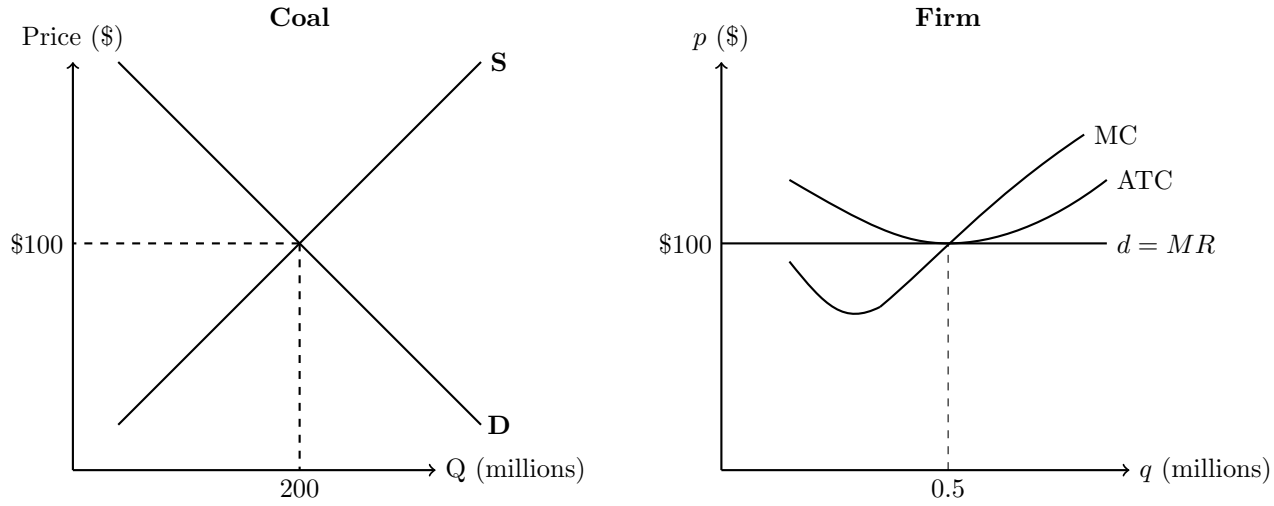
32. What is the market price for oil?
33. What is the market quantity for oil?
34. How much oil will this producer supply?
35. Why will this producer supply the amount you answered in question 34?
36. What price will this producer charge for their oil?
37. Why will this firm charge the price you answered in question 36?
38. What is this firm's economic profit?
39. Will this firm stay in the market?
40. What will happen in this market in the long-run? How will this affect this producer?
41. Suppose people stop buying electric cars. What are the short-run and long-run effects of this on the market for oil and this firm? Note: Oil is a primary input in making gasoline.
42. A new oil drill comes out which is much more productive than the old oil drills. What are the short-run and long-run effects of this on the market for oil and this firm?
43. Olive oil can now be used in place of oil for a car. What are the short-run and long-run effects of this on the market for oil and this firm?

Use the following graphs representing the rice market as well as the costs for a local mom and pop rice farm to answer questions 44-52.



44. What is the market price for rice?
45. What is the market quantity for rice?
46. How much rice will this producer supply?
47. Why will this farm supply the amount you answered in question 47?
48. What price will this farm charge for their rice?
49. Why will this farm charge the price you answered in question 49?
50. What is this farm's economic profit?
51. Will this farm stay in the market?
52. What will happen in this market in the long-run? How will this affect this producer?

Use the following graphs representing the coal market as well as the costs of a coal producing firm to answer questions 53-62.



53. What is coal's market price?

54. What is coal's market quantity?

55. How much coal will this firm supply?

56. Why will this firm supply the amount you answered in question 56?

57. What price will this firm charge for their coal?

58. Why will this firm charge the price you answered in question 58?

59. What is this firm's economic profit?

60. Will this firm stay in the market?

61. All cities in the US are now installing solar panels across their city. How will this affect the market and this firm in the short-run? How will it affect the market and this firm in the long-run?

62. New research comes out promoting the burning of coal. How does this affect the market and this coal producing firm in both the short-run and the long-run?

63. The market for iron ore is perfectly competitive with all firms currently earning zero economic profit. Iron is now a common input in car manufacturing. What are the short-run and long-run effects of this on the market for iron ore and its producers?

64. The market for generic-brand bottled water is perfectly competitive. All firms currently earn zero economic profit. A new diet has gained popularity promoting drinking less water to lose weight. How will this affect the generic-brand water market in the short and long-run? How will this affect the producers of generic-brand water in the short and long-run?

65. Eggs are considered to have a perfectly competitive market. My farm specializes in egg production. A new chicken feed comes out which makes chickens produce twice as many eggs. How will this affect the market for eggs and my farm in the short and long-run?

66. The market for gravel has many buyers and sellers, no barriers to entry and exit, and gravel does not vary in quality. Roads are suddenly all made from gravel only (no asphalt or concrete). How does this affect the gravel market in the short-run and long-run? How does it affect gravel producers who previously had zero economic profits?

67. The market for lumber is considered to be perfectly competitive. Houses are no longer made using any form of lumber. How does this affect the lumber market and its producers who currently have zero economic profit?

Use the following information in regards to the market for gas in Tallahassee to answer questions 68-73.

The market for gas in Tallahassee is perfectly competitive with all firms earning zero economic profit. Electric vehicles are suddenly much cheaper in the US.

68. What are the short-run effects on the gas market as a whole?

69. What are the short-run effect on the local Wawa?

70. What are the long-run effects on the gas market?

71. What are the long-run effects on the local Wawa?

72. How will this market operate differently in the long-run compared to before electric vehicles became cheaper (i.e. before any changes)?

73. How will the remaining firms operate differently in the long-run due to the prices of electric vehicles decreasing?

Use the following information in regards to the market for flour to answer questions 74-79.

The market for flour is perfectly competitive with all firms earning zero economic profit. The price of cornstarch suddenly decreases. Cornstarch and flour are substitutes in production.

74. What are the short-run effects on the flour market?

75. What are the short-run effects on flour producers?

76. What are the long-run effects on the flour market?

77. What are the long-run effects on flour producers?

78. How will this market be different in the long-run than it was before the price of cornstarch decreased?

79. How will firms operate differently in the long-run because cornstarch is cheaper (i.e. how are they different in the long-run than they were before any changes)?

Use the following information in regards to the milk market to answer questions 80-102.

The milk market has many buyers and sellers, no barriers to entry or exit, and no product differentiation. All milk producers previously had zero economic profit. The price of cereal decreases.

80. How does this affect the market supply in the short-run?
81. How does this affect the market demand in the short-run?
82. How does this affect the market price in the short-run?
83. How does this affect the market quantity in the short-run?
84. How does this affect the demand for a given firm's milk in the short-run?
85. How does this affect the price that a firm charges for their milk in the short-run?
86. How does this affect the quantity supplied by a milk producer in the short-run?
87. How does this affect the profit of a milk producer in the short-run?
88. How does this affect the market supply in the long-run?
89. How does this affect the market demand in the long-run?
90. How does this affect the market price in the long-run?
91. How does this affect the market quantity in the long-run?
92. How does this affect the demand for a given firm's milk in the long-run?
93. How does this affect the price that a firm charges for their milk in the long-run?
94. How does this affect the quantity supplied by a milk producer in the long-run?
95. How does this affect the profit of a milk producer in the long-run?
96. How is market supply different in the long-run than it was before the price of cereal decreased?
97. How is market demand different in the long-run than it was before the price of cereal decreased?
98. How is the market price different in the long-run than it was before the price of cereal decreased?
99. How is the market quantity different in the long-run than it was before the price of cereal decreased?
100. How is the demand for a given firm's milk different in the long-run than it was before the price of cereal decreased?
101. How is the price for a given firm's milk different in the long-run than it was before the price of cereal decreased?
102. How is the quantity supplied for a given milk producer different in the long-run than it was before the price of cereal decreased?

Answers

1. Equal to \$5 since the market will operate at equilibrium.
2. Q^e
3. \$5
4. Chris must charge \$5 per mile otherwise no one will use his taxi services. This if he charges any more than \$5 then people will use any one of the millions of other taxis in NYC.
5. q^e
6. This is his profit maximizing quantity since it is where MC = MR
7. Chris currently has zero economic profit ($\pi = 0$) since his ATC at q^e is equal to his price (\$5). Thus $\pi = q^e(\$5 - \$5) = q^e \times 0$.
8. Yes, Chris should continue being a taxi driver since he is doing at least as well off as his next best option since his economic profit is zero ($\pi = 0$).
9. In the long-run, nothing will change in this market since all taxi drivers (like Chris) have zero economic profit. Thus, there is no reason for taxi drivers to either enter or exit the market.
10. Chris's economic profit will not change in the long-run. His economic profit will remain at zero.
11. SR: Demand for taxi rides decreases since more people will use Uber or Lyft since they are now cheaper than they were before. This will cause a demand shift left. This causes a decrease in market quantity and market price (below \$5). Because of this, Chris's demand for his taxi rides will decrease. Because of this he will now operate at a lower price and lower quantity. Overall, this will cause his economic profit to be zero. The same will be true for all taxi drivers.

    LR: Since all taxi drivers now have zero economic profit, some will choose to exit the market and supply will decrease. This will then cause the price of taxi rides to increase until it is back to its original price of \$5. This supply decrease (shift left) will also cause a decrease in the market quantity. Suppliers leaving the market will cause the demand for each individual taxi driver's services to increase. Thus, the taxi drivers who remain will go back to charging \$5 and earning zero economic profit again. The remaining producers will always earn zero economic profit in the long run.
12. SR: Demand for taxi rides decreases since people are walking more. This will cause a demand shift left. This causes a decrease in market quantity and market price (below \$5). Because of this, Chris's demand for his taxi rides will decrease. Because of this he will now operate at a lower price and lower quantity. Overall, this will cause his economic profit to be zero. The same will be true for all taxi drivers.

    LR: Since all taxi drivers now have zero economic profit, some will choose to exit the market and supply will decrease. This will then cause the price of taxi rides to increase until it is back to its original price of \$5. This supply decrease (shift left) will also cause a decrease in the market quantity. Suppliers leaving the market will cause the demand for each individual taxi driver's services to increase. Thus, the taxi drivers who remain will go back to charging \$5 and earning zero economic profit again. The remaining producers will always earn zero economic profit in the long run.
13. $\$P^e$
14. Q^e
15. q_3
16. This is the profit maximizing quantity since it is the quantity where marginal cost (MC) is equal to marginal revenue (MR).
17. p^e
18. Hannah must charge this price since this is the going price for wheat. Since this is an perfectly competitive market, no one is willing to pay any more for her wheat than any of the other producers' wheat.
19. Because Hannah is trying to maximize profit, not minimize cost! Although q_2 minimizes average total cost, the marginal cost is still less than the marginal revenue at q_2, so the firm is increasing its profit by selling more than q_2. Thus Hannah will sell q_3, not q_2.

20. Yes, Hannah has positive economic profit since her ATC at q_3 is less than p^e. Therefore economic profit is $\pi = q_3 \underbrace{(p^e - ATC)}_{>0} > 0$.

21. Yes Hannah should stay open since she has positive economic profit. This means that she is doing better off than her next best option. For Hannah this may be growing other types of crops. Thus, Hannah should continue growing and selling wheat.

22. Since Hannah and other producers have positive economic profits, more producers will enter the market. This will cause supply of wheat to increase and the demand for Hannah's wheat will decrease. Thus both the market price and Hannah's price will decrease until firms have zero economic profit. Hannah will then have zero economic profit in the long-run.

23. \$30

24. 150 tons

25. 1.75 tons

26. This is the profit maximizing quantity since it is where MC = MR.

27. \$30

28. Since it is the market price for sand. Also, this is the price which corresponds with MC = MR.

29. $\pi = 1.75(30 - 35) = 1.75 \times -5 = -8.75$

30. We do not have enough information to tell this since we don't know the quarry's average variable cost.

31. In the long-run, some firms will leave the market since they have negative economic profit. This will decrease the supply of sand (supply shift left). This will cause the price of sand to increase to \$35 (since this is where $\pi = 0$. This will also decrease market quantity. Firms leaving will also cause the demand for this quarry's sand to increase and they will begin charging the new market quantity of \$35 too. This will increase the quantity this quarry sells too (q increases).

32. \$1.80

33. 1,000 gallons

34. 30 gallons

35. Because this is the profit maximizing quantity since it is where MC = MR.

36. \$1.80

37. They will charge \$1.80 since that is the market price and this firm is a price taker.

38. $\pi = 30(\$1.80 - \$1.80) = 30 \times 0 = 0$

39. Yes since they have non-negative economic profit, they are doing at least as well as their next best option. Another way to see this is that since $ATC \leq p^e$ they will certainly stay in business.

40. Nothing will change in this market in the long-run since every firm is already making zero economic profit. No firms will exit and no new firms will enter the market.

41. SR: People not buying electric cars will increase the demand for oil. This will cause market price, P, to increase and market quantity, Q, to increase. Because of this, demand for each firms' oil will increase and each firms' price will increase to match that of the market price. This will cause firms such as this firm to have positive economic profit.

    LR: Since firms have positive economic profit, more firms will enter the market since there are no barriers to entry. This will increase the supply of oil (supply shift right). Firms will continue to enter until the price goes back to the original price of \$1.80 where each firm has no economic profit. More firms in the market will cause the demand for each individual firm's oil to decrease back to what it was beforehand and the firm's price will decrease back to what it was before (\$1.80). The firm's quantity will also decrease back to where it was before and quantity will be back at 30. Because of this, each firm (such as our firm here) will have zero economic profit in the long-run.

42. SR: A new, more productive drill will cause the supply of oil to decrease since the cost of production will decrease. This will cause the market price to decrease below \$1.80 and quantity to increase past 1,000. This increase in supply will cause the demand for any one firm's oil to decrease so the firm's price to decrease too so that it matches the market price. This will cause economic profit of all firms to be negative.

    LR: Since economic profits are negative, some of the firms will exit. Here we do not know if this firm will exit or not since we do not know the new market price. Firms will continue to exit until the price goes back to the original market price of \$1.80. Thus the supply shift left here will be equivalent in size to the supply shift right which happened in the short-run. This will cause the demand for each firm's oil to increase and firms will go back to charging their original price of \$1.80. The market quantity and this firm's quantity will also go back to what they were originally (1,000 and 30 respectively). Thus all firms still in the market will have zero economic profit again in the long-run.

43. SR: Olive oil can now be used in place of regular oil, so the demand for oil will decrease. This will cause the market price and quantity to decrease. This will then cause the firm's price to decrease since they are price takers (p decrease). The firm's new profit maximizing quantity will also decrease. Overall this will make economic profits negative.

    LR: Since economic profits are now negative, some firms will leave the market. This will be firms where AVC $> p$. This will cause the supply of oil to decrease and thus the market price will increase and market quantity will decrease even more. Firms will charge more (back to their original zero economic profit price of \$1.80) so firm prices increase and firm quantity will increase (again back to their original quantity of 30). As always, this will cause the economic profit of all remaining firms to go back to 0

44. \$1.00

45. 100 billion pounds of rice

46. 2 million pounds of rice

47. This is the profit maximizing quantity (where MC = MR = d).

48. \$1.00

49. This farm will charge this since they are a price taker.

50. $\pi = 2,000,000 \times (\$1.00 - \$1.06) = -\$120,000$

51. This farm will stay in the market since they are losing less than if they shut down and paid all of their fixed costs. If they shut down, they would have to pay their TFC$= 2,000,000 \times \$0.09 = \$180,000$. Thus, they would lose an additional \$60,000! Therefore they should stay in business. Notice again, AVC at 2,000,000 is less than the price they are charging \$1.00. So its like they are able to pay down some of their total fixed costs.

52. In the long-run, some other firms will leave this market due to the negative economic profit. Again, this mom and pop shop will continue in the market. This will cause the supply of rice to decrease and market price and quantity will decrease. This will cause the remaining firms, such as our mom and pop shop, to charge more. They will eventually charge \$1.06 which will result in zero economic profit for all remaining firms in the market.

53. $100

54. 200,000,000

55. 500,000

56. This is their profit maximizing quantity since it is where MC = MR.

57. $100

58. This is the market price and this market operates in perfect competition.

59. $0 since MC, ATC, and MR all cross at the same point (q = 500,000, p = $100).

60. Yes they should stay in since economic profit is non-negative!

61. SR: This new initiative will cause a big decrease in the demand for coal since cities will be powered by solar panels not coal. This will cause market price and quantity to both decrease. This will then cause firms to charge less for their coal since they must charge whatever the market determines. This will cause firms to have negative economic profit in the short-run and they will supply fewer units of coal

    LR: Since all firms have $\pi < 0$, some firms will leave. Thus S decreases and prices will revert back to $100 but market quantity will decrease. Firm's quantity will then go back to 500,000 for the remaining firms in the market since the demand for their coal increased and they are charging $100 again.

62. SR: Now the cost of production will be less and thus the supply of coal will increase. This will cause market prices to decrease and the market quantity to increase. This will then cause the demand for any given firm's coal to decrease and they will have to charge less (the amount of the new market price). This will make firms have negative economic profit.

    LR: Because firms have negative economic profit, some will choose to leave. This will cause supply to decrease again back to the original supply curve. This will result in prices going back to $100, market quantity being 200,000,000 again, and this firm selling 500,000 units again. Now all firms will have $\pi = 0$ in the long run.

63. SR: Since iron is being used more, its demand will increase. Now the market price and market quantity will each be more than before. This will result in higher demand for each mine's iron ore. They will charge and supply more and now have positive economic profit.

    LR: Since they have positive economic profit, more firms will enter the market and supply will increase. Price will then decrease back to where it was originally and market quantity will increase again. The demand for any given mine's iron will decrease and they will go back to charging the original price and supplying the same amount as they were before any changes to this market.

64. SR: This trend will cause the demand for generic water to decrease. This will result in lower prices (both market and firm prices) and lower quantity. The firms will then also supply a lower quantity and their economic profit will be negative.

    LR: Since economic profits are negative, firms will exit and supply will decrease. This will cause prices to decrease and market quantity to decrease. Firms will thus charge the original price (before any changes) and supply the original quantity as they did before. This will again result in zero economic profit for the remaining firms.

65. SR: S increases, P decreases, Q increases, d decreases, p decreases, q decreases, $\pi < 0$ now

    LR: S decreases, P increases, Q decreases, p increases, q increases, $\pi = 0$ no

66. SR: D increases, P increases, Q increases, d increases, p increases, q increases, $\pi > 0$ now

    LR: S increases, P decreases (back to original P), Q increases (so Q is much higher than original), d decreases (back to original), p decreases (back to original), q decreases (back to original), $\pi = 0$

67. SR: D decreases, P decreases, Q decreases, p decreases, q decreases, $\pi < 0$ now

    LR: S decreases, P increases (back to the original), Q decreases (Now much lower than to begin with). d increases (back to original), p increases (back to the original), q increases (back to the original), $pi = 0$ now (as always in the long-run)

68. Demand decreases since gas and electric vehicles are substitute goods. This causes the price of gas and the quantity of gas to both decrease.

69. The price decreases since Wawa is a price taker. Demand for Wawa's gas will decrease. The quantity supplied by Wawa also decreases since their new profit maximizing quantity is less than it was before. Economic profits are now zero for Wawa and all other firms.

70. Supply decreases since firms will leave due to negative economic profits. This will cause the market price to increase back to the original market price. Market quantity will decrease again.

71. Some firms will leave the market. This will cause demand for Wawa's gas to increase since there are now fewer competitors. The price Wawa receives will increase and go back to what they were charging before. The quantity that Wawa supplies will increase back to what it was originally as well.

72. In the long-run, the market will operate at the same (original) price as it did before any changes, such as the price of electric vehicles decreasing, but the market quantity will be much less than it was before. This is because people will now choose to buy more electric cars and less gas cars and thus less gas.

73. The remaining firms in the market will operate just as they were before. The same price and quantity as before any changes. There will be fewer firms in business though since some exited the market.

74. The supply of flour increases since producers will now choose to produce more flour and less cornstarch since the price of cornstarch decreased and these goods are substitutes in production. This will cause the price of flour to decrease and the quantity of flour to increase.

75. Flour producers will see less demand for their specific flour since more is being supplied by other firms and thus will charge less than they were before. They would charge the same as the market price since they are price takers. This will cause the quantity supplied by this firm to decrease. Overall this will cause economic profits of all firms to decrease.

76. Supply of flour will decrease again back to what it was originally since some firms will leave due to negative economic profits. This will cause prices to go back to what they were before. This will also cause the market quantity to decrease back to what it was before any changes.

77. The demand for any given firm's flour will increase since many firms leave the market. Firms will continue charging the market price which is now what it was originally. They will also supply the amount they did before. Economic profit will go back to 0.

78. Nothing will change! Since all of the short-run effects where undone by the long-run, nothing will change due to this.

79. The only thing that will change is the number of firms in the market. There will be fewer firms in the market since some exited, but the price and quantity that each firm supply will be the same as they were originally. Economic profit is still 0.

80. Nothing
81. Demand increases since cereal and milk are complimentary goods.
82. Increases
83. Increases
84. It increases since people want more milk.
85. Increases to match the new market price.
86. Increases
87. Increases and is now positive.
88. Increases since more firms will enter the market.
89. Nothing changes
90. Decreases back to what it was originally since this causes economic profit of all firms to be zero.
91. Increases again
92. Decreases since there are now more options which are just as good. This is because there are now more firms in the market.
93. Decreases back to the original price.
94. Decreases back to the original quantity supplied
95. Decreases as it goes back to zero. All economic profits are zero in the long run since this market is perfectly competitive.
96. Market supply is greater than it was originally since more firms are in the market.
97. Market demand is greater than it was to begin with since the price of cereal is cheaper.
98. Market price is the same as it was originally.
99. Market quantity is greater than it was to begin with since there are more suppliers and higher demand. Notice each of these effects alone increases quantity, so in the long-run, quantity must increase.
100. It's the same as it was before since there are more firms in the market to counteract the increase in demand for milk.
101. It's the same as it was before since the market price went back to what it was originally and the firms are price takers.
102. Profits for all firms are zero as they always are in the long-run if the market is perfectly competitive! This is because more firms entered the market to "eat up" the positive economic profit which firms enjoyed in the short-run.

Monopolies

Use Table 5, representing the costs and revenues for a monopolist, to answer questions 1-12.

Table 5

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
\$600	0				–	–	–	–	–	0	
\$550	10		2,000								
\$500	20							240			
\$450	30				160						
\$400	40						175				
\$350	50		8,500								
\$300	60			11,500							
\$250	70	1,000						200			
\$200	80						200				
\$150	90				400						
\$100	100			26,000							

1. Complete Table 5.
2. What is the marginal revenue of the thirtieth unit?
3. What is the total cost to produce eighty units?
4. What is the marginal cost of producing the fiftieth unit?
5. What is the average fixed cost of producing ten units?
6. What is the average total cost of producing one-hundred units?
7. What is the total revenue of the firm pricing their good at \$550?
8. What is the profit of the firm choosing to charge \$400?
9. How many units will this firm supply?
10. What will be the market quantity?
11. At what price will the firm choose to sell their good at?
12. What will be the firm's profit?

Use Table 6, representing the costs and revenues for a monopolist, to answer questions 13-26.

Table 6

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
\$60	1		35		–				–		
\$59	2			90							
\$58	3							20			
\$57	4		75								
\$56	5			137		8					
\$55	6						20				
\$54	7				40						
\$53	8						25.75				
\$52	9		250								
\$51	10				70	4					
\$50	11							44			

13. Complete Table 6.
14. What is the total revenue of selling one unit?
15. What is the total revenue of the firm selling the good at \$60?
16. What is the total fixed cost?
17. What is the marginal cost of the third unit?
18. What is the average variable cost of producing ten units?
19. What is the marginal revenue of selling the eighth unit?
20. What is the average fixed cost of producing six units?
21. What is the profit of selling two units?
22. What will be the market price?
23. What will be the firm price?
24. What will be the market quantity?
25. What will be this firm's quantity supplied?
26. What will be this firm's profit?

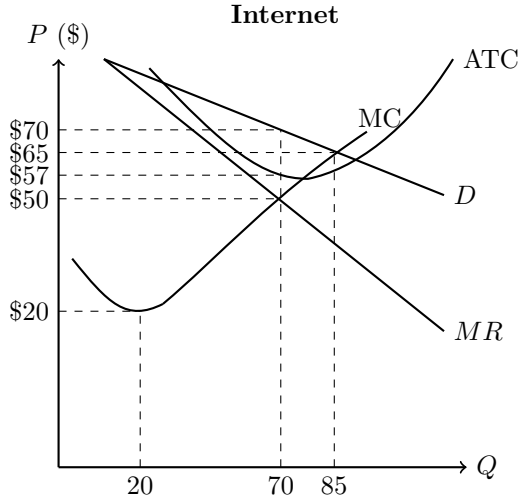
Use Table 7, representing the costs and revenues for a monopolist, to answer questions 27-35.

Table 7

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
\$100	0	1,500	0		–	–	–	–	–		
\$90	10						100.00				
\$80	20							160.00			
\$70	32		2,600								
\$60	45			5,200							
\$50	60				110						
\$40	80		7,750								
\$30	100			11,750							
\$20	125							124.00			
\$10	200				200						

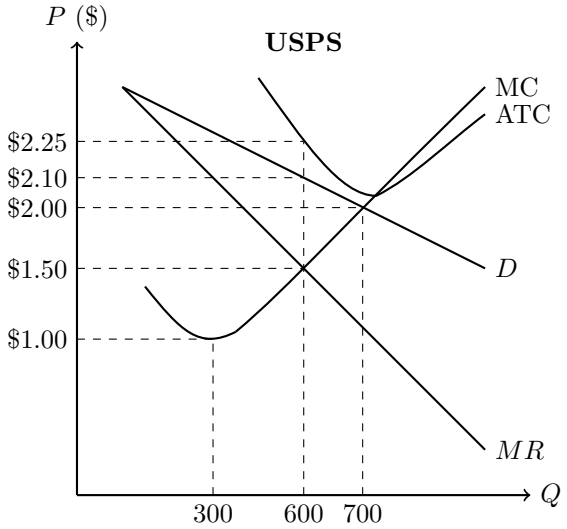
27. Complete Table 7.
28. What is the total revenue if the firm chooses to charge \$40?
29. What is the total variable cost of producing 200 units?
30. What is the marginal cost of producing the thirty-second unit?
31. What is the firm's profit if they choose a price of \$10?
32. How many units will the firm sell if they choose a price of \$90?
33. What is the average variable cost of producing sixty units?
34. What will be the quantity supplied in this market?
35. What will be this firm's profit?

Use the graph below representing a monopolist, who is the sole supplier of internet in their area, to answer questions 36-42.



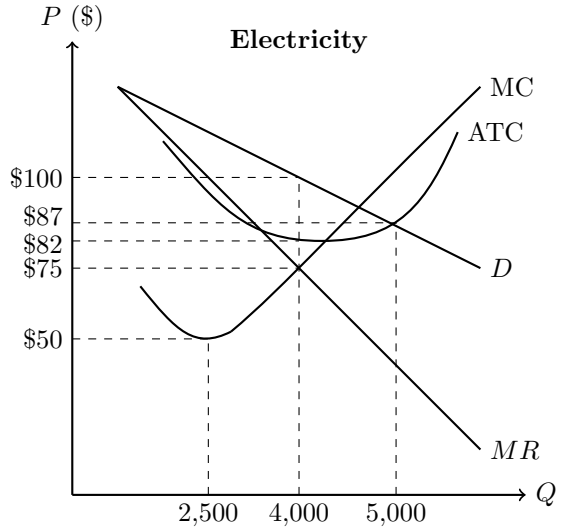
36. What will be this firm's quantity supplied?
37. What will be the quantity demanded for internet?
38. What will be the market quantity for internet?
39. What will be the market price for internet?
40. What will be this firm's profit? Is it positive, negative, or zero?
41. What does \$20 represent for this firm?
42. Why do they not charge \$20?

Use the graph below representing USPS, who has a monopoly on mail delivery to mailboxes (Yes this is real), to answer questions 43-48.



43. What will be the market price for mailbox delivery?
44. How much mail will USPS deliver to mailboxes?
45. What will be the market quantity of mailbox delivery?
46. What will be USPS's average total cost?
47. What is USPS's profit? Is it positive, negative, or zero?
48. Is this profit normal for a monopolist?

Use the graph below representing the market for electricity in a city, this is almost always a monopoly (this is how we will model it), to answer questions 49-55.



49. What is the market price for electricity in this city? This is the price which the firm chooses.

50. How much electricity will this firm supply?

51. What is the quantity demanded for electricity?

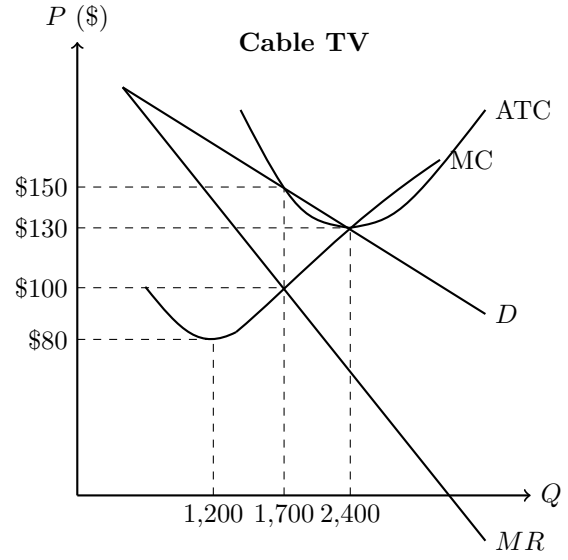
52. What will be the market quantity for electricity?

53. Is this firm producing at their lowest average total cost (i.e. their lowest cost per unit)?

54. What is this firm's profit?

55. Why doesn't this firm choose to charge $87 for their electricity?

Use the graph below representing the market for cable TV, which has only a single producer in this area, to answer questions 56-61.



56. Which price will this firm choose to charge consumers for cable TV?

57. What will be the quantity demanded for cable TV?

58. What will be the market quantity for cable TV?

59. What is the lowest average total cost possible for this firm?

60. What is this firm's profit?

61. Is this profit normal for a monopolist?

Answers

1. The completed table is below.

Table 5 Answered

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
\$600	0	1,000	0	1,000	–	–	–	–	–	0	-1,000
\$550	10	1,000	2,000	3,000	200	100	200	300	550	5,500	2,500
\$500	20	1,000	3,800	4,800	180	50	190	240	450	10,000	5,200
\$450	30	1,000	5,400	6,400	160	33.33	180	213.33	350	13,500	7,100
\$400	40	1,000	7,000	8,000	160	25	175	200	250	16,000	7,100
\$350	50	1,000	8,500	9,500	150	20	170	190	150	17,500	8,000
\$300	60	1,000	10,500	11,500	200	16.67	175	175	50	18,000	6,500
\$250	70	1,000	13,000	14,000	250	14.29	185.71	200	-50	17,500	3,500
\$200	80	1,000	16,000	17,000	300	12.50	200	212.50	-150	16,000	-1,000
\$150	90	1,000	20,000	21,000	400	11.11	222.22	233.33	-250	13,500	-7,500
\$100	100	1,000	25,000	26,000	500	10	250	260	-350	10,000	-16,000

2. \$350
3. \$17,000
4. \$150
5. \$100
6. \$260
7. \$5,500
8. \$7,100
9. 50
10. 50
11. \$350
12. \$8,000
13. The completed table is below.

Table 6 Answered

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
\$60	1	40	35	75	–	40	35	75	–	60	-15
\$59	2	40	50	90	15	20	25	45	58	118	28
\$58	3	40	60	100	10	13.33	20	33.33	56	174	74
\$57	4	40	75	115	15	10	18.75	28.75	54	228	113
\$56	5	40	97	137	22	8	19.40	27.40	52	280	143
\$55	6	40	120	160	23	6.67	20	27.40	50	330	170
\$54	7	40	160	200	40	5.71	22.86	26.67	48	378	178
\$53	8	40	206	246	46	5	25.75	30.75	46	424	178
\$52	9	40	250	290	50	4.44	27.78	32.22	44	468	178
\$51	10	40	320	360	70	4	32	36	42	510	150
\$50	11	40	400	440	80	3.64	36.36	44	40	550	110

14. \$60
15. \$60

16. $40
17. $10
18. $32
19. $46
20. $6.67
21. $28
22. $53
23. $53
24. 8
25. 8
26. $178
27. The completed table is below.

Table 7 Answered

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
$100	0	1,500	0	1,500	–	–	–	–	–	0	-1,500
$90	10	1,500	1,000	2,500	100	150.00	100.00	250.00	90.00	900	-1,600
$80	20	1,500	1,700	3,200	70	75.00	85.00	160.00	70.00	1,600	-1,600
$70	32	1,500	2,600	4,100	75	46.88	81.25	128.13	53.33	2,240	-1,860
$60	45	1,500	3,700	5,200	84.61	33.33	82.22	115.56	35.38	2,700	-2,500
$50	60	1,500	5,350	6,850	110	25.00	89.17	114.17	26.67	3,000	-3,850
$40	80	1,500	7,750	9,250	120	18.75	96.88	115.63	25.00	3,200	-6,050
$30	100	1,500	10,250	11,750	125	15.00	102.50	117.50	20.00	3,000	-8,750
$20	125	1,500	14,000	15,500	150	12.00	112.00	124.00	12.00	2,500	-13,000
$10	200	1,500	29,000	30,500	200	7.50	145.00	152.50	13.33	2,000	-28,500

28. $3,200
29. $29,000
30. $75
31. -$28,500
32. 10
33. $89.17
34. 20
35. -$1,600
36. 70 since this is where MC = MR.
37. 70 since this is the quantity demanded at $70.
38. 70 since this firm represents the entire market.
39. $70
40. $\pi = Q(P - ATC) = 70(\$70 - \$57) = 70 \times \$13 = \$910 > 0$
41. $20 is the lowest marginal cost possible for this firm. This is the marginal cost of the twentieth unit.
42. They don't charge $20 since this would not be profit maximizing! We know they want quantity to be where MC = MR, which is 70, and the maximum price for which consumers will still buy all 70 units is $70. Thus they will choose to charge $70.

43. \$2.10

44. 600

45. 600 since the USPS is the only producer since this is a monopoly.

46. \$2.25

47. $\pi = Q(P - ATC) = 600(\$2.10 - \$2.25) = 600 \times -\$0.15 = -\$90 < 0$

48. No, this is not normal for a monopolist. Monopolists usually have positive economic profits since they have maximum market power. Interestingly, this is exactly how USPS operates. They lose money every year, but are able to stay in business since they are funded by the federal government.

49. \$100

50. 4,000

51. 4,000

52. 4,000 since this firm is the only producer.

53. No they are not! We know this since they are producing where MC = MR which is not where MC = ATC for this firm. We know ATC is lowest where MC = ATC, so we know they are not producing at their lowest ATC. The lowest ATC occurs at some quantity between 4,000 and 5,000.

54. $\pi = Q(P - ATC) = 4,000(\$100 - \$82) = 4,000 \times \$18 = \$72,000 > 0$

55. Firms will always charge an amount that corresponds to the profit maximizing quantity. This profit maximizing quantity is 4,000. Notice their profit decreases for every unit they sell above 4,000. Charging \$82 and selling 5,000 units is where this firm would have zero economic profit.

56. \$150

57. 1,700

58. 1,700

59. \$130 since this is the lowest point on the ATC curve.

60. $\pi = Q(P - ATC) = 1,700(\$150 - \$150) = 1,700 \times \$0 = \$0$

61. No, this is not normal for monopolists. Monopolists usually have positive economic profits.

Game Theory

Use Table 18 representing possible prices for Yeti and Stanley's water bottles to answer questions 1-3.

Table 8

		Stanley	
		$40	**$50**
Yeti	**$40**	Y: $100 S: $80	Y: $120 S: $60
	$50	Y: $110 S: $90	Y: $150 S: $75

1. Does Yeti have a dominant strategy? If so, what is it? If not, why don't they?
2. Does Stanley have a dominant strategy? If so, what is it? If not, why don't they?
3. What will be the price of each water bottle? Do we know the result for certain?

Use Table 9 representing Monster and Red Bull's profits if they advertise or don't advertise to answer questions 4-6.

Table 9

		Monster	
		Advertise	**Don't**
Red Bull	**Advertise**	RB: $10 M: $12	RB: $30 M: $13
	Don't	RB: $5 M: $15	RB: $8 M: $20

4. Does Monster have a dominant strategy? If so, what is it? If not, why don't they?
5. Does Red Bull have a dominant strategy? If so, what is it? If not, why don't they?
6. Which companies will advertise? Do we know the result for certain?

Use Table 10 representing possible prices for Apple and Samsung's new smart phones to answer questions 7-10.

Table 10

		Apple	
		$1,000	**$1,500**
Samsung	**$1,000**	S: $750 A: $800	S: $1,200 A: $600
	$1,500	S: $500 A: $1,500	S: $900 A: $1,000

7. Does Apple have a dominant strategy? If so, what is it? If not, why don't they?
8. Does Samsung have a dominant strategy? If so, what is it? If not, why don't they?
9. What will be the price of each phone? Do we know the result for certain?
10. Is there an opportunity for these companies to collude? If so, what price should they each charge if they choose to collude?

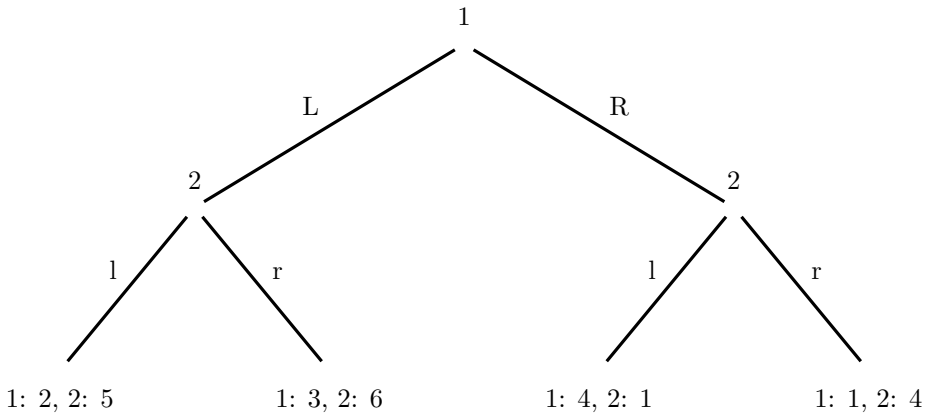
Use Table 11 representing Fender and Gibson's profits if they choose to sponsor local music festivals or not to answer questions 11-13.

Table 11

		Fender	
		Sponsor	**Don't**
Gibson	**Sponsor**	G: \$10 F: \$12	G: \$15 F: \$8
	Don't	G: \$11 F: \$20	G: \$3 F: \$6

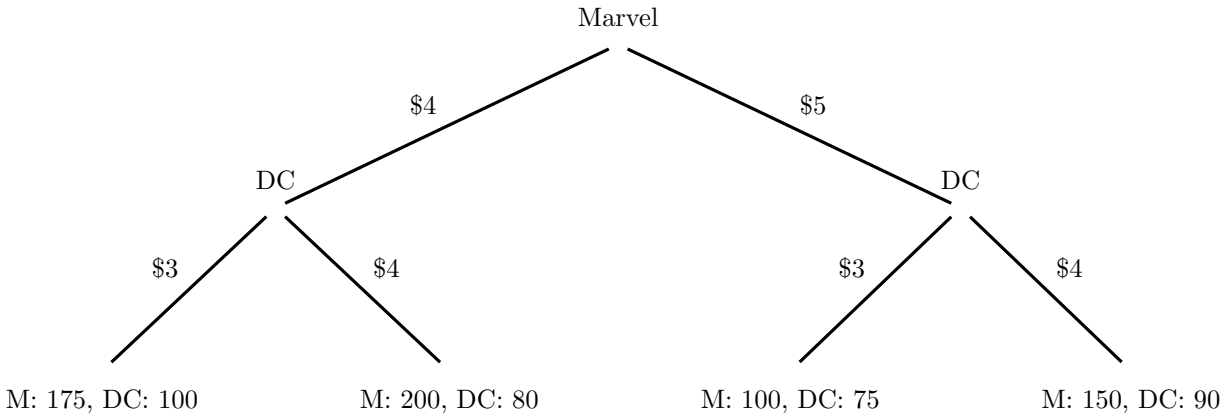
11. Does Fender have a dominant strategy? If so, what is it? If not, why don't they?
12. Does Gibson have a dominant strategy? If so, what is it? If not, why don't they?
13. Which of these firms will choose to sponsor local music festivals? Do we know the result for certain?

Use the extensive form representation below to answer questions 14-19.



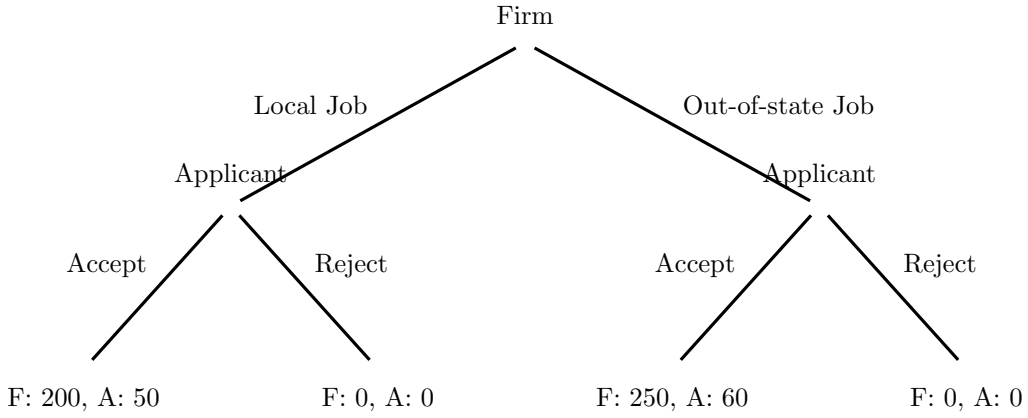
14. What will Player 2 choose to do if Player 1 chooses to go left?
15. What will Player 2 choose to do if Player 1 chooses to go right?
16. Does Player 2 have a dominant strategy?
17. Does Player 1 have a dominant strategy?
18. What will Player 1 choose to do?
19. What is the certain outcome of this game?

Use the following extensive game representing Marvel and DC Comics's price options to answer questions 20-25.



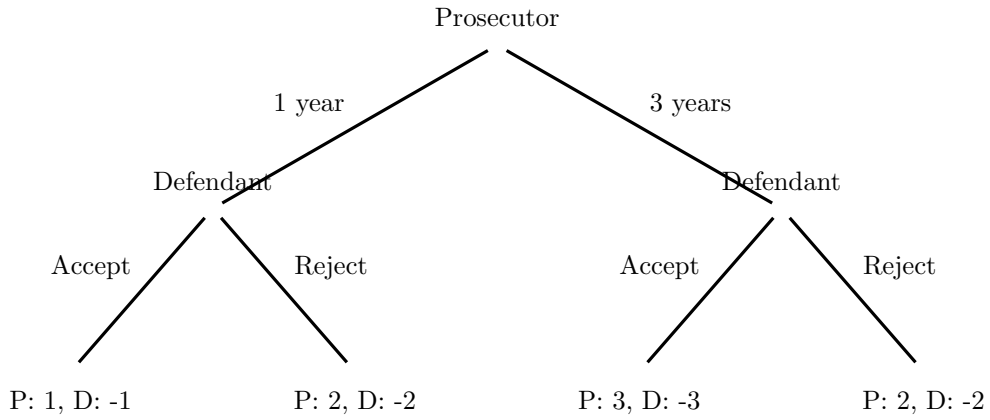
20. If Marvel charges $4, how much will DC Comics charge?
21. If Marvel charges $5, how much will DC Comics charge?
22. If Marvel knows that DC Comics will charge $4, how much should Marvel charge?
23. Does DC Comics have a dominant strategy?
24. Does Marvel have a dominant strategy?
25. What will be the outcome of this game?

Use the following extensive game representing a firm offering a job to a job applicant to answer questions 26-28. The firm has already decided they want to hire the applicant, but must choose to hire them for a local job or an out-of-state job. The local job does not require the applicant to move but the out-of-state job does. After seeing the job which is offered to them, the applicant can either accept or reject the job.



26. Does the job applicant have a dominant strategy?
27. What will the firm choose to do?
28. What will be the outcome of this game?

Use the following extensive game representing a plea bargaining deal between the prosecutor and defendant to answer questions 29-32. The prosecutor has already decided to offer the plea deal to the defendant, but has not decided how long to offer them. The prosecutor may choose to offer a plea deal of one or three years in prison. Once offered, the defendant then chooses to accept or reject.



29. Will the defendant accept or reject an offer of one year?
30. Will the defendant accept or reject an offer of three years?
31. Does the defendant have a dominant strategy?
32. What will be the outcome of this game?

Answers

1. Yes, Yeti has a dominant strategy to charge $50 for their water bottles since this is better than charging $40 no matter what Stanley does.
2. Yes, Stanley has a dominant strategy to charge $40 for their water bottles no matter what price Yeti chooses to charge.
3. The final price will be $50 for Yeti and $40 for Stanley water bottles. We know this for certain since both companies have a dominant strategy.
4. Yes, Monster has a dominant strategy to not advertise. Not advertising will always be better for them than advertising.
5. Red Bull has a dominant strategy to advertise. They will always be more profitable if they advertise than if they don't.
6. Only Red Bull will advertise. We know this for certain since this is there dominant strategy and Monster has a dominant strategy to not advertise.
7. Yes, Apple has a dominant strategy to charge $1,000. They will always choose to do this.
8. Yes, Samsung will always charge $1,000 since this is better for them than charging $1,500. Thus this is a dominant strategy.
9. Both companies will charge $1,000 for their phones since they each have dominant strategies.
10. Yes there is an opportunity for them to collude and each charge $1,500 and both be better off. This would require for them to act as a cartel and fix the price. This is illegal, but they may still try to do it so that they will both be made better off.
11. Yes, Fender has a dominant strategy to sponsor the local music festival since they will always be better off than if they don't.
12. No, Gibson does not have a dominant strategy. Their best option depends on Fender's decision.
13. Fender will certainly sponsor the local music festival since it is their dominant strategy. Gibson has no dominant strategy, but they will certainly not sponsor the music festival since they know what Fender will do. Since Gibson knows Fender will sponsor the festivals, their best option is to not sponsor it even though it is not their dominant strategy.
14. Player 2 will go right if Player 1 goes right.
15. Player 2 will go right if Player 1 goes right.
16. Yes Player 2 has a dominant strategy to always go right as shown by the answers to questions 1 and 2.
17. No they don't. If they know Player 2 will go left, then Player 1 should go right. However, if they know Player 2 will go right, then Player 1 should go left. Therefore they do not have a dominant strategy.
18. Player 1 will go left since they know Player 1 will go right.
19. The outcome of this game will be that Player 1 goes left and Player 2 goes right.
20. DC will charge $3.
21. DC will charge $4.
22. Then Marvel should charge $4.
23. No since they may choose either $3 or $4 depending on what Marvel does as shown by the answers to questions 7 and 8.
24. Yes, Marvel has a dominant strategy to choose $4.
25. Marvel will choose $4 and DC Comics will go $3.
26. Yes they have a dominant strategy to accept the offer since otherwise they get a payoff of zero since they won't get the job.
27. The firm will choose to offer the out-of-state job since they know the applicant will accept either job offer.

28. The outcome will be that the applicant will accept the out-of-state job offer from the firm.

29. They will accept the 1 year plea deal.

30. They will reject the 3 year plea deal.

31. No the defendant does not have a dominant strategy since they may or may not accept the plea deal and that depends on how long the prosecutor offers.

32. The prosecutor will offer the plea deal of three years and the defendant will reject the offer. This will result in the defendant getting two years in prison.

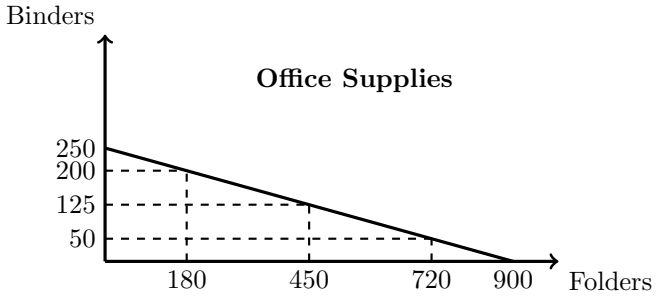
Quiz #1

Principles of Microeconomics

Instructor: Colin Adams

Questions

Use the following production possibilities frontier for office supplies to answer questions 1-3.



1. Is the production bundle of (475 folders, 130 binders) efficient, inefficient, or impossible?

   A. Efficient
   B. Inefficient
   C. Impossible
   D. We cannot tell based off this PPF

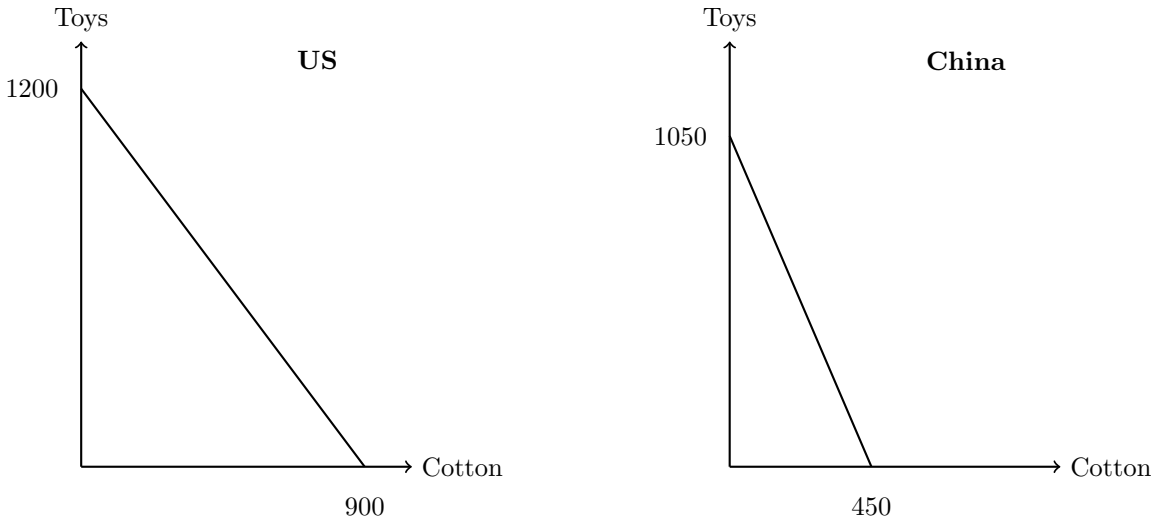
2. Is the production bundle of (180 folders, 195 binders) efficient, inefficient, or impossible?

   A. Efficient
   B. Inefficient
   C. Impossible
   D. We cannot tell based off this PPF

3. Is the production bundle of (720 folders, 50 binders) efficient, inefficient, or impossible?

   A. Efficient
   B. Inefficient
   C. Impossible
   D. We cannot tell based off this PPF

Use the following production possibilities frontier for the US and China to answer questions 4-12.



4. What is the opportunity cost of 1 cotton in the US?

   A. 0.75 toys
   B. 1.14 toys
   C. $1.3\bar{3}$ toys
   D. $2.3\bar{3}$ toys
   E. None of the above

5. What is the opportunity cost of 1 toy in China?

   A. 0.375 cotton
   B. 0.75 cotton
   C. 0.86 cotton
   D. 2 cotton
   E. None of the above

6. What is the opportunity cost of 260 toys in the US?

   A. 0.75 cotton
   B. 111.49 cotton
   C. 195 cotton
   D. $346.6\bar{6}$ cotton
   E. None of the above

7. Is the production bundle of (720 cotton, 250 toys) efficient, inefficient, or impossible for the US?

   A. Efficient
   B. Inefficient
   C. Impossible
   D. We cannot tell based off this PPF

8. Is the production bundle of (300 cotton, 350 toys) efficient, inefficient, or impossible for China?

    A. Efficient
    B. Inefficient
    C. Impossible
    D. We cannot tell based off this PPF

9. Which of the following is true?

    A. The US has the absolute advantage in both goods.
    B. China has the absolute advantage in both goods.
    C. The US has the absolute advantage in toys but China has it in cotton.
    D. The US has the absolute advantage in cotton but China has it in toys.
    E. Neither country has the absolute advantage in either good.
    F. None of the above

10. Which of the following is true?

    A. The US has the comparative advantage in both goods.
    B. China has the comparative advantage in both goods.
    C. The US has the comparative advantage in toys but China has it in cotton.
    D. The US has the comparative advantage in cotton but China has it in toys.
    E. Neither country has the comparative advantage in either good.
    F. None of the above

For the next two questions, consider the following situation.

Both the US and China decide to specialize in the good(s) in which they have the comparative advantage. They then trade 200 toys for 125 cotton (it is on you to know which country is trading which good).

11. Suppose the US wants 200 toys and produces efficiently. How much more do they have due to specialization and trade?

    A. 20 more cotton
    B. $33.3\overline{3}$ more cotton
    C. 39.29 more cotton
    D. $291.6\overline{6}$ more cotton
    E. None of the above

12. Suppose China wants 850 toys and produces efficiently. How much more do they have due to specialization and trade?

    A. 20 more cotton
    B. $33.3\overline{3}$ more cotton
    C. 39.29 more cotton
    D. $291.6\overline{6}$ more cotton
    E. None of the above

13. Which of the following correctly explains the difference between supply and quantity supplied?

    A. Supply is the amount of a good sold in the market, while quantity supplied is the total available inventory.
    B. Supply refers to the relationship between price and quantity supplied, while quantity supplied is the number of units supplied at a given price.
    C. Supply is the quantity that producers are willing to sell at a specific price, and quantity supplied is the amount supplied at all prices.
    D. Supply increases only when the price of the good rises, while quantity supplied changes due to external factors like technology.
    E. Supply and quantity supplied mean the same thing and can be used interchangeably.
    F. None of the above are correct

14. Which of the following is only true in equilibrium?

    A. Quantity supplied is greater than quantity demanded
    B. Quantity supplied is less than quantity demanded
    C. Quantity supplied equals quantity demanded
    D. Supply is greater than demand
    E. Supply is less than demand
    F. None of the above are correct

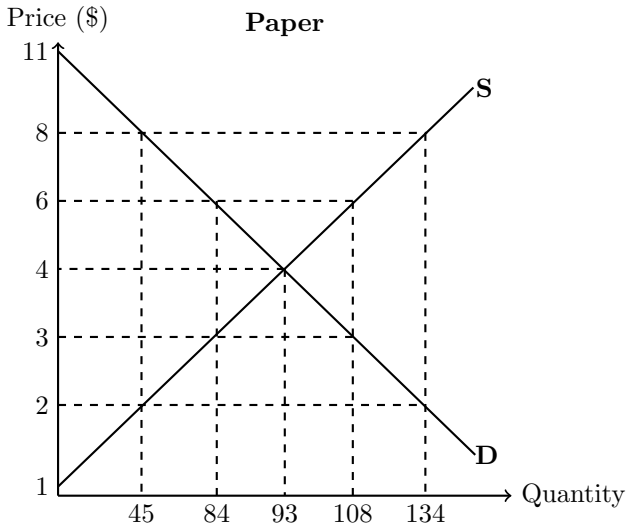
Quiz #2

Principles of Microeconomics

Instructor: Colin Adams

Questions

Use the following graph representing the market for (a pack of) paper to answer questions 1-6.



1. The market price for paper is $6. What is the consumer surplus?

   A) $0
   B) $67.50
   C) $210
   D) $336
   E) None of the above

2. The market price for paper is $4. What is the dead weight loss?

   A) $0
   B) $13.50
   C) $139.50
   D) $144
   E) None of the above

3. The market price for paper is $4. What is the producer surplus?

   A) $0
   B) $84
   C) $292.50
   D) $336
   E) None of the above

4. Suppose this market operates at a price of $8. Are consumers better or worse off than they would be at equilibrium (and by how much)?

   A) $10.50 better off
   B) $12 better off
   C) $12 worse off
   D) $258 worse off
   E) None of the above

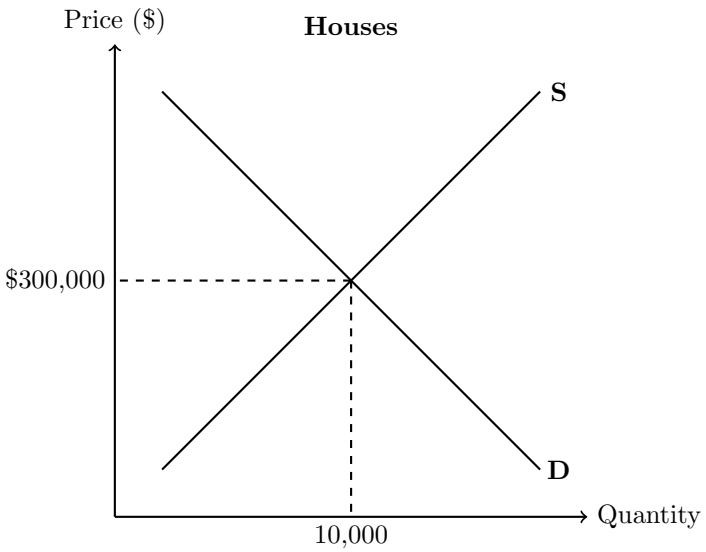
5. Suppose this market operates at a price of $3. Are producers better or worse off than they would be at equilibrium (and by how much)?

   A) $12 better off
   B) $55.50 worse off
   C) $196.50 better off
   D) $258 worse off
   E) None of the above

6. Suppose this market operates at a price of $2. Are consumers better or worse off than they would be at equilibrium (and by how much)?

   A) $10.50 better off
   B) $12 worse off
   C) $196.50 better off
   D) $258 worse off
   E) None of the above

Use the following graph representing the market for houses to answer questions 7-12. Consider each question by itself (i.e. none of the changes made in previous questions apply, so the market always begins in equilibrium).



7. The market for houses begins in equilibrium. Suppose the price of lumber suddenly drops. Which of the following is true?

   A) Demand increases
   B) Demand decreases
   C) Supply increases
   D) Supply decreases
   E) None of the above

8. The market for houses begins in equilibrium. Suppose the price of apartments increases. Which of the following is true?

   A) Market quantity increases
   B) Market quantity decreases
   C) Price decreases
   D) Supply increases
   E) Supply decreases

9. The housing market begins in equilibrium. Suppose the government gives a $1,000 tax refund this year. Which of the following is true?

   A) Market quantity decreases
   B) Price increases
   C) Price decreases
   D) Supply increases
   E) Supply decreases

10. The housing market begins in equilibrium. Suppose everyone expects the price of housing to increase in the future. Which of the following is true?

   A) Market quantity increases
   B) Market quantity decreases
   C) Price decreases
   D) None of the above

11. The housing market begins in equilibrium. Suppose new technology comes out which allows for 3-D printing of houses affordably and a viral trend begins promoting home-ownership. Which of the following is true?

   A) Market quantity increases
   B) Market quantity decreases
   C) Market price increases
   D) Market price decreases
   E) None of the above

12. The housing market begins in equilibrium. Suppose the number of home builders increases and the price of lawn-care increases. Which of the following is true?

   A) Market quantity increases
   B) Market quantity decreases
   C) The effect on market quantity is ambiguous
   D) None of the above

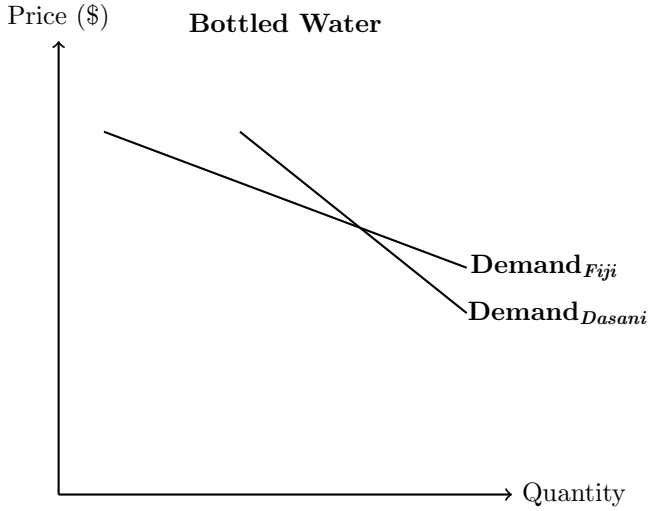
Quiz #3

Principles of Microeconomics

Instructor: Colin Adams

Questions

Use the following graph of the demand for various fast food burgers for question 1.



1. Which type of water has more elastic demand?

   A) Fiji

   B) Dasani

   C) Demand for each are equally elastic

   D) Demand for neither good is elastic

   E) None of the above

2. Suppose the price of energy drinks falls by 10% at the same time that energy drink sales increase by 4%. What is the price elasticity of demand for energy drinks?

   A) 0.4

   B) 1

   C) 2.5

   D) 10

   E) None of the above

3. A bookstore knows they can sell either 600 economics textbooks at $90 or 500 economics textbooks at $110. Which of the following is true?

   A) The elasticity of demand for economics textbooks is elastic

   B) The elasticity of demand for economics textbooks is inelastic

   C) The elasticity of demand for economics textbooks is unit elastic

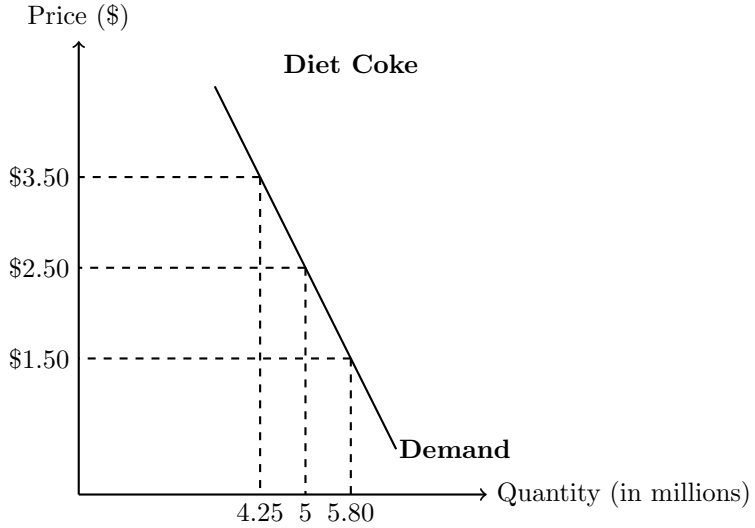
   D) The elasticity of demand for economics textbooks is perfectly inelastic

   E) None of the above

4. Suppose the average price of concert tickets rises from \$100 to \$120. As a result, concert ticket sales drop from 50,000 to 40,000. What is the price elasticity of demand for concert tickets?

   A) 0
   B) $0.\overline{81}$
   C) 1
   D) $1.\overline{2}$
   E) None of the above

   Use the following graph of the demand for Diet Coke to answer questions 5 and 6.



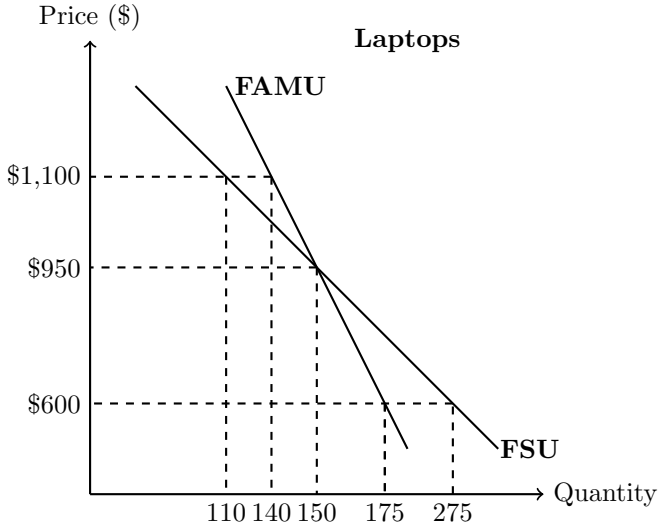
5. Suppose gum is normally \$3.50, but goes on sale for \$1.50. What is the elasticity of demand for Diet Coke?

   A) $0.\overline{296}$
   B) $0.\overline{486}$
   C) $2.0\overline{5}$
   D) 3.375
   E) None of the above

6. Vending machine owners decide to increase the price of Diet Coke from \$1.50 to \$2.50. What is the elasticity of demand for Diet Coke?

   A) $0.\overline{296}$
   B) $0.\overline{486}$
   C) $2.0\overline{5}$
   D) 3.375
   E) None of the above

Use the following graph of FSU and FAMU's demand for laptops to answer question 7.



7. The price of laptops goes from \$950 to \$1,100. What is FAMU's elasticity of demand for laptops?

   A) 0.34
   B) 1.3
   C) 2.1
   D) 2.94
   E) None of the above

8. Suppose the federal unemployment benefit increases from \$300 to \$450 per week. During the same period, sales of instant ramen at Dollar General fall from 8,000 to 6,500 units. What is the income elasticity of demand for instant ramen? Assume only benefit recipients buy instant ramen from Dollar General.

   A) 0
   B) 0.52
   C) $1.9\overline{3}$
   D) 10
   E) None of the above

9. Suppose Netflix reduces its monthly subscription price from \$20 to \$15. At the same time, sales of movie theater tickets in Atlanta drop from 5,000 to 4,000 per week. What is the cross price elasticity of demand for movie tickets in Atlanta?

   A) 0
   B) $0.\overline{7}$
   C) 1
   D) 1.29
   E) None of the above

10. The minimum wage unequivocally helps suppliers of low-skill labor.

    A) True
    B) False

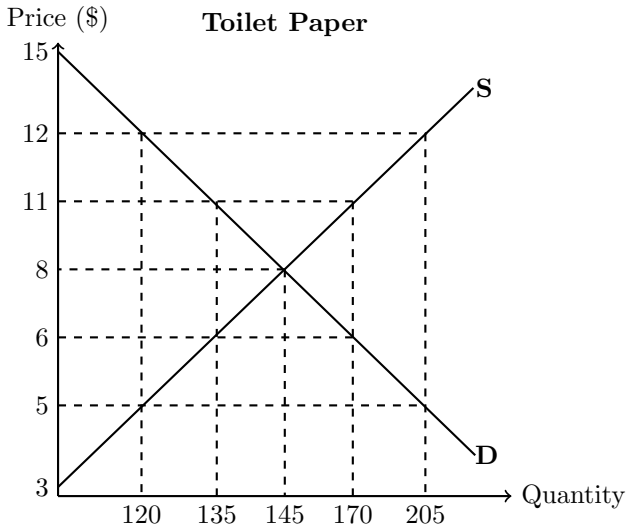
11. When a non-binding price ceiling is implemented in a market, which of the following is true?

    A) This market will operate at a shortage
    B) This market will operate at equilibrium
    C) This market will operate at a surplus
    D) None of the above

12. A binding minimum wage will have which of the following effects on the market for low-skill labor?

    A) The number of people employed in the low-skill labor market will decline
    B) The number of people employed in the low-skill labor market will increase
    C) The demand for low-skill labor will increase
    D) The demand for low-skill labor will decrease
    E) None of the above

Use the following graph representing the market for toilet paper to answer questions 13-15. Suppose this market is currently at equilibrium before any change made in the question(s).



13. The newly formed Toilet Paper Regulation Committee (TPRC) enacts a $11 price floor in this market. Which of the following is true?

    A) This market now operates at a shortage
    B) This market still operates at equilibrium
    C) This market now operates at a surplus
    D) None of the above

14. The government puts a price ceiling of $12 on toilet paper. How much worse off does this make consumers (in terms of consumer surplus)?

    A) $180 worse off
    B) $237.50 worse off
    C) $327.50 worse off
    D) $507.50 worse off
    E) None of the above

15. This market now has a price ceiling of $5. Are consumers made better or worse off, and by how much, than they were at equilibrium?

    A) Consumers are made $327.50 worse off
    B) Consumers are made $512.50 better off
    C) Consumers are made $842.50 worse off
    D) Consumers are made $1020 better off
    E) None of the above

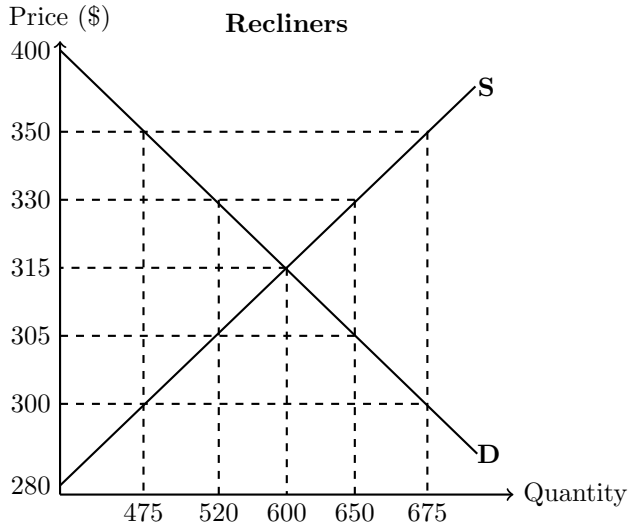
Quiz #4

Principles of Microeconomics

Instructor: Colin Adams

Questions

Use the following graph representing the market for recliners for questions 1-6.



1. The government imposes a $305 price floor. Which of the following is true?

   A) Market quantity increases
   B) Quantity supplied decreases
   C) Quantity demanded increases
   D) Demand increases
   E) None of the above

2. The government imposes a $305 price ceiling. Which of the following is true?

   A) Market quantity increases
   B) Quantity supplied decreases
   C) Quantity demanded decreases
   D) Demand increases
   E) None of the above

3. The government is considering a $50 subsidy for recliners. This would be given to consumers as a rebate. Who has the statutory incidence of this subsidy?

   A) Consumers
   B) Producers
   C) Both consumers and producers
   D) Neither consumers nor producers
   E) None of the above

4. The government is considering a $50 subsidy for recliners. This would be given to consumers as a rebate. Who has the actual incidence of this subsidy?

   A) Consumers
   B) Producers
   C) Both consumers and producers
   D) Neither consumers nor producers
   E) None of the above

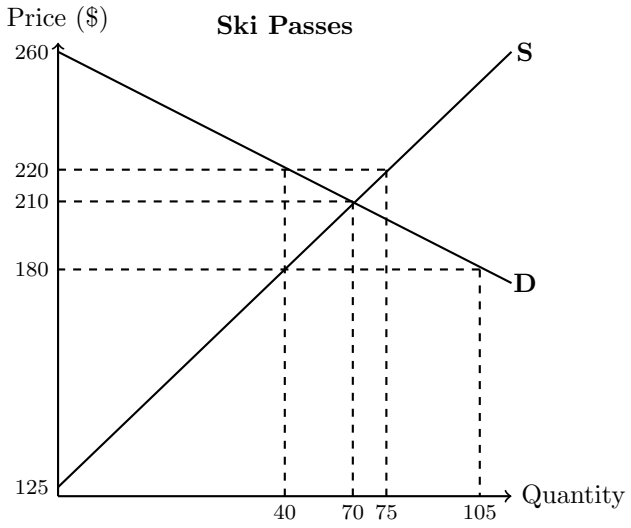
5. The government is considering a $50 subsidy for recliners. This would be given to consumers as a rebate. Which of the following is true?

   A) Consumers are made $33,750 better off
   B) Consumers are made $8,250 better off
   C) Producers are made $6,375 better off
   D) Producers are made $16,875 better off
   E) This subsidy creates no dead weight loss

6. The government is considering a $25 tax on recliners. This would be charged to consumers on top of the cost of the recliner (similar to sales tax). Which of the following is true?

   A) Consumers are made $18,200 better off
   B) Consumers are made $7,300 worse off
   C) Producers are made $4,000 better off
   D) Producers are made $6,500 worse off
   E) None of the above

Use the following graph representing the market for ski passes for questions 7-10.



7. The government is considering a $180 price ceiling on ski passes. How much better off would this make consumers of ski passes?

   A) $650
   B) $800
   C) $950
   D) $1,750
   E) None of the above

8. The government is considering a $180 price ceiling on ski passes. How much worse off would this make producers of ski passes?

   A) $275
   B) $575
   C) $1,100
   D) $1,875
   E) None of the above

9. The government imposes a $40 tax on ski passes. This would be a tax paid by the ski resorts for every pass they sell. Who has the actual incidence of this tax?

   A) Consumers
   B) Producers
   C) Both consumers and producers
   D) Neither consumers nor producers
   E) None of the above

10. The government imposes a $40 tax on ski passes. This would be a tax paid by the ski resorts for every pass they sell. How much dead weight loss is generated due to this?

    A) $0
    B) $275
    C) $450
    D) $575
    E) $650
    F) None of the above

11. Which of the following is a reason that economists are not interested in who has the statutory incidence of a tax or subsidy?

    A) Statutory incidence doesn't represent who is impacted by the tax
    B) Producers are always the ones with statutory incidence
    C) Both sides always have statutory incidence
    D) Statutory incidence determines market equilibrium
    E) None of the above

12. Which of the following is a reason that the government must provide public goods?

    A) Only the government has the legal ability to provide public goods
    B) No firm can profit off of selling public goods
    C) Private firms over provide public goods
    D) The government must require people to use public goods otherwise no one would buy them
    E) None of the above

13. Which of the following is a reason that a good should be taxed?

    A) The government believes the market quantity to be too low
    B) The good has negative externalities
    C) The good is a public good
    D) The good is nonrivalrous
    E) None of the above

Quiz #5

Principles of Microeconomics

Instructor: Colin Adams

Questions

1. Which of the following is true at the quantity where the firm is at its lowest average total cost?

   A) At this quantity, marginal cost is minimized (i.e. at its lowest)
   B) This is the quantity where average fixed cost is its lowest
   C) The firm will always operate at this cost in the short-run
   D) At this quantity, average total cost equals marginal cost
   E) None of the above

2. Which of the following are true only in the long run?

   A) All costs are variable
   B) The marginal cost equals the average total cost
   C) Economic profit is maximized
   D) The firm has no opportunity cost
   E) None of the above

3. What is taken into consideration in economic profit (π) which is not included in accounting profit?

   A) Total costs
   B) Fixed costs
   C) Variable costs
   D) Average costs
   E) None of the above

4. What is true of average fixed costs?

   A) They are always high
   B) They affect the marginal cost
   C) They are always decreasing in quantity
   D) They equal zero in the short-run
   E) None of the above

5. Which of the following is not a reason that a firm may be a price taker in their market?

   A) The market has a large number of buyers and sellers
   B) The market has no barriers to entry
   C) All firms in the market produce an identical good
   D) The firm's marginal cost doesn't equal marginal revenue
   E) All of the above are a reason for a firm to be a price searcher

6. Which of the following describes the quantity at which firms will choose to produce in the short-run?

   A) Where marginal cost equals marginal revenue
   B) Where average total cost is minimized
   C) Where average total cost equals marginal cost
   D) Where average fixed cost is minimized
   E) None of the above

Use Table 12 to answer questions 7-13.

Table 12

Q	TFC	TVC	TC	MC	AFC	AVC	ATC
0	180		180	–	–	–	–
1		90					
2						80	
3			390				
4				50			
5			500				
6		410					
7							102.86
8							110
9						98.89	
10	180			220			

7. What is the (total) fixed cost of producing 5 units?

   A) $0
   B) $50
   C) $60
   D) $100
   E) None of the above

8. What is the (total) variable cost of producing 0 units?

   A) $0
   B) $50
   C) $90
   D) $180
   E) None of the above

9. What is the marginal cost of the 8th unit?

   A) $87.50
   B) $110
   C) $160
   D) $180
   E) None of the above

10. What is the average total cost of producing 4 units?

    A) $45
    B) $50
    C) $65
    D) $110
    E) None of the above

11. What is the average fixed cost of producing 9 units?

    A) $22.50
    B) $87.50
    C) $118.90
    D) $190
    E) None of the above

12. What is the marginal cost of the 2nd unit?

    A) $70
    B) $80
    C) $90
    D) $170
    E) None of the above

13. What is the average total cost of producing one unit?

    A) $90
    B) $180
    C) $270
    D) $340
    E) None of the above

Quiz #6

Principles of Microeconomics

Instructor: Colin Adams

Questions

1. Which of the following will cause more producers to enter a market with perfect competition?

   A) Low market quantity
   B) Low marginal costs
   C) Positive economic profit
   D) High demand
   E) Low average total costs

2. The market for corn is perfectly competitive. Corn based bread is now all the rage and stores can't keep it in stock! Which of the following is a short-run effect of this phenomenon on the market for corn?

   A) (Market) Supply for corn will decrease
   B) Firms will have negative economic profit
   C) (Market) Demand for corn will decrease
   D) Demand for a firm's corn will increase
   E) None of the above

3. The market for corn is perfectly competitive with all firms earning zero economic profit. Corn based bread is now all the rage and stores can't keep it in stock! Which of the following is a long-run effect of this phenomenon on the market for corn?

   A) Market quantity will increase
   B) Economic profits will be positive
   C) Firms' quantity will increase
   D) (Market) Supply for corn will decrease
   E) None of the above

4. Which of the following is not a reason for a market to have high barriers of entry?

   A) Government licensing
   B) Control over an essential resource or material
   C) Diseconomies of scale
   D) Patents and copyrights
   E) All of the above are reasons for high barriers

5. Which of the following is a characteristic of a monopoly market?

   A) Only a few sellers and many buyers
   B) Producers are price searchers
   C) No dead weight loss
   D) Low barriers to entry
   E) None of the above

6. Suppose a market, which was previously perfectly competitive, is now a monopoly. Which of the following will occur since the market is now a monopoly (rather than in perfect competition)?

   A) Producer surplus will increase
   B) Market price will decrease
   C) Market quantity will increase
   D) Consumer surplus will increase
   E) The market will now be more efficient

Use table 13 representing a monopolist's costs and revenues to complete questions 7-11.

Table 13

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
\$30	0				–	–	–	–	–		-\$200
\$29	10			\$250							
\$28	20				\$4						\$270
\$27	30							\$11.33			
\$26	40		\$185								
\$25	50						\$4.90				
\$24	60				\$7.00						
\$23	70		\$400								
\$22	80						\$6.25				
\$21	90			\$830							
\$20	100							\$10.00			

7. What is the total fixed cost for this firm?

   A) \$0
   B) \$200
   C) \$250
   D) \$2,000
   E) None of the above

8. What is the marginal cost of the hundredth unit?

   A) \$0
   B) \$17
   C) \$20
   D) \$170
   E) None of the above

9. What is the marginal revenue of the fortieth unit?

   A) \$0
   B) \$4.50
   C) \$23
   D) \$230
   E) None of the above

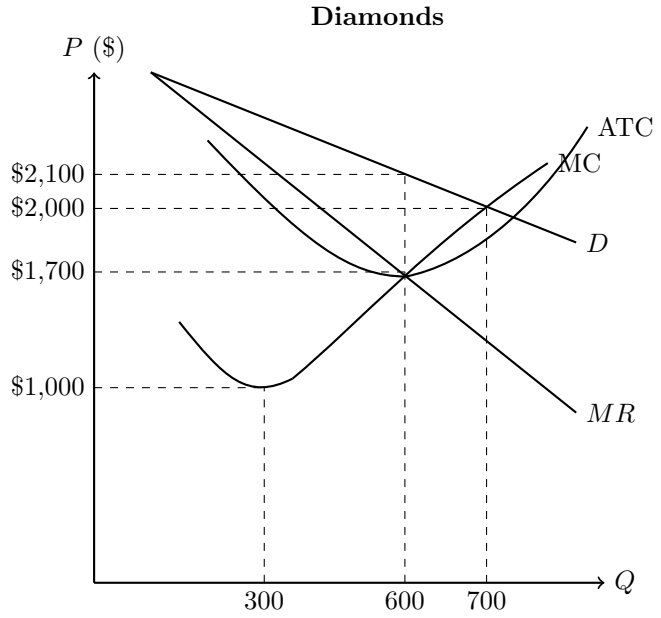
10. What is the average variable cost of producing twenty units?

    A) $4.50
    B) $10
    C) $90
    D) $290
    E) None of the above

11. What will be this firm's profit?

    A) -$200
    B) $0
    C) $1,000
    D) $1,010
    E) $2,000
    F) None of the above

Use the graph below representing the market for diamonds, provided by a monopolist, to answer questions 12-14.



12. What will be the market quantity for diamonds?

    A) 300
    B) 600
    C) 700
    D) None of the above

13. What will be the market price for diamonds?

    A) $1,000
    B) $1,700
    C) $2,000
    D) $2,100
    E) None of the above

14. Which of the following is true about the monopolist producing diamonds?

    A) This firm will have negative economic profit
    B) This firm will have zero economic profit
    C) This firm will have positive economic profit
    D) We cannot tell the economic profit based off this graph
    E) None of the above

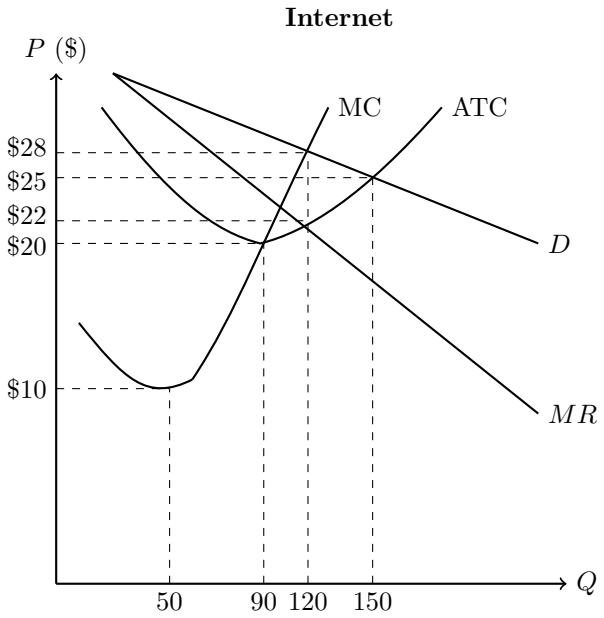
Quiz #7

Principles of Microeconomics

Instructor: Colin Adams

Questions

Use the graph below representing the market for internet in Tallahassee, which is a monopoly, to answer questions 1-3.



1. What will be the market price for internet?

   A) $10
   B) $20
   C) $22
   D) $25
   E) $28

2. What will be the market quantity for internet?

   A) 50
   B) 90
   C) 120
   D) 150
   E) We cannot tell based off this graph

3. If this market were to operate in perfect competition, which of the following is true?

   A) The market price would be less
   B) The market quantity would be less
   C) The market would be less efficient
   D) The market would have greater producer surplus
   E) None of the above

4. Which of the following is a characteristic of an oligopoly which is not a characteristic of a monopoly?

   A) There are multiple buyers of the market
   B) There are large barriers to entry
   C) There is only one producer
   D) None of the above

5. Which of the following refers to a group of firms acting as one in order to maximize the profits of the group?

   A) Monopoly
   B) Oligopoly
   C) Monopolistic Competition
   D) Perfect Competition
   E) Cartel

Use table 14 representing possible prices for Nintendo and Sony's next video game systems to answer questions 6-7.

Table 14

		Sony	
		$400	**$500**
Nintendo	**$450**	N: $1,000 P: $900	N: $1,500 P: $750
	$500	N: $800 P: $1,100	N: $1,200 P: $900

6. Which of the following is true?

   A) Nintendo has a dominant strategy to charge $450
   B) Nintendo has a dominant strategy to charge $500
   C) Sony has a dominant strategy to charge $500
   D) Sony should never charge $400
   E) None of the above are true

7. Which of the following combinations will be the certain result for Nintendo and PlayStation's video game consoles?

   A) Nintendo will charge $450 and Sony will charge $400
   B) Nintendo will charge $500 and Sony will charge $400
   C) Nintendo will charge $450 and Sony will charge $500
   D) Nintendo will charge $500 and Sony will charge $500
   E) We cannot know what the result will be for certain

8. Which of the following is the most important characteristic of monopolistic competition which separates it from perfect competition?

   A) There are few sellers
   B) Producers are price-takers
   C) There are few consumers
   D) Products aren't identical
   E) None of the above

9. Which of the following is a type of second degree price discrimination?

   A) Negotiating with a contractor
   B) Madison Social offering a lunch deal if you buy a piece of pizza and a beer
   C) Senior discounts
   D) A wine company offering a very similar wine in a nicer bottle with a nicer label
   E) None of the above

10. Which of the following is an example of people responding rationally to incentives?

    A) Producing t-shirts becomes more profitable, so businesses produce more socks instead.
    B) A law requiring people to wear safety belts causes them to drive more slowly and carefully.
    C) A higher price of gasoline causes people to buy smaller, more fuel-efficient cars.
    D) Crime rates fall in the area around your favorite park, and as a result you visit the park less often.

11. The opportunity cost of an action is...

    A) the value of the best opportunity that must be sacrificed in order to take the action.
    B) the total time spent by all parties in carrying out the action.
    C) the cost of all alternative actions that could have been taken, added together.
    D) the monetary payment the action required.

12. If equilibrium is present in a market...

    A) quantity demanded equals quantity supplied.
    B) consumer surplus equals producer surplus.
    C) supply equals demand.
    D) all consumers and producers are happy.

13. A business maximizes its profit by producing up to the point at which...

    A) marginal cost is greater than marginal revenue.
    B) average cost equals average revenue.
    C) total cost equals total revenue.
    D) marginal cost equals marginal revenue.

Quiz #8

Principles of Microeconomics

Instructor: Colin Adams

Questions

1. Which of the following is not always an outcome of firms price discriminating?

   A) Higher producer surplus
   B) Markets are more efficient
   C) Lower consumer surplus
   D) All of the above are always an outcome of price discrimination

2. Which of the following is a condition necessary to price discriminate?

   A) Arbitrage must be possible
   B) Consumers must be able to hide their willingness to pay
   C) Producers must be price takers
   D) Producers must be able to charge different consumers different prices
   E) None of the above are necessary conditions

3. A local bar running a happy hour where all drinks are 25% off from 3-6pm every weekday is an example of which type of price discrimination?

   A) Perfect price discrimination
   B) Second degree price discrimination
   C) Third degree price discrimination
   D) Premium Pricing
   E) None of the above

4. A vendor at the local flea market not putting prices on any of their goods, rather they tell each individual customer what the price of the good is, is an example of which of the following?

   A) Perfect price discrimination
   B) Second degree price discrimination
   C) Third degree price discrimination
   D) Premium Pricing
   E) None of the above

5. A computer company sells a wired mouse for $40. They have another model of mouse which is identical but connects to your computer using Bluetooth. This Bluetooth mouse costs $75. This is an example of which of the following?

   A) Perfect price discrimination
   B) Second degree price discrimination
   C) Third degree price discrimination
   D) Premium Pricing
   E) None of the above

6. Times magazine is considering their pricing structure. They currently offer two options. The first being an online-only subscription of Times for $59.99. The other option is an online and print subscription for $99.99. They are about to add a third option being a print-only subscription of Time for $99.99. This new option would be considered which of the following?

   A) Anchor
   B) Decoy
   C) Default
   D) Adverse Selection
   E) Imperfect Information

7. A used car dealership posts the "book value" of every car they are trying to sell next to the price they are asking for it. This is an example of which of the following?

   A) Anchor
   B) Imperfect Information
   C) Default
   D) Decoy
   E) Moral Hazard

8. Insurance policies typically auto-renew when they are expired. This is an example of which of the following?

   A) Adverse Selection
   B) Decoy
   C) Anchor
   D) Default
   E) Moral Hazard

9. A car owner asking for $20,000 for a car which they know is worth less, due to how they treated it, is an example of which of the following?

   A) Decoy
   B) Anchor
   C) Default
   D) Moral Hazard
   E) Adverse Selection

10. You are at a work dinner. Right before you are about to order, your boss tells you they will pay for your meal. Because of this, you decide to get the $50 surf and turf rather than the $25 salad you were going to get. This is an example of which of the following?

    A) Moral Hazard
    B) Adverse Selection
    C) Decoy
    D) Default
    E) Anchor

Midterm

Principles of Microeconomics

Instructor: Colin Adams

Name: _____ **Date:** _____

This is a closed note, closed book exam. You have 75 minutes to complete this exam. You may not use a phone, outside materials, or your own calculator. Only a basic calculator provided by the instructor is allowed. Academic dishonesty will result in a zero and will be reported.

Answers

Write the letter of your selected answer choice (A, B, C, D, E, etc.) in the blank next to each question number below. Only answers recorded on this answer sheet will be graded. Answers written on the question pages will not be considered. Make sure your responses are clearly written and easy to read. Unclear or unreadable answers will be marked incorrect. Each question is worth 2.5 percent of your total midterm grade.

1. _____	11. _____	21. _____	31. _____
2. _____	12. _____	22. _____	32. _____
3. _____	13. _____	23. _____	33. _____
4. _____	14. _____	24. _____	34. _____
5. _____	15. _____	25. _____	35. _____
6. _____	16. _____	26. _____	36. _____
7. _____	17. _____	27. _____	37. _____
8. _____	18. _____	28. _____	38. _____
9. _____	19. _____	29. _____	39. _____
10. _____	20. _____	30. _____	40. _____

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Questions

1. Which of the following refers to the fundamental problem in economics that people have finite resources but infinite wants.

   A) Scarcity
   B) Utility
   C) Opportunity Cost
   D) Statutory incidence
   E) None of the above

2. Which of the following refers to the way in which rational individuals make their decisions?

   A) Actual incidence
   B) Positively
   C) At the margin
   D) Normatively
   E) None of the above

3. Which of the following is NOT a reason that the demand for eyeglasses is inelastic?

   A) People spend a significant portion of their overall income on eyeglasses
   B) Eyeglasses are generally a necessity, not a luxury
   C) There are no close substitutes for eyeglasses outside of contacts
   D) One cannot get corrective surgery immediately (i.e. it takes time to schedule a surgery)
   E) All of the above are a reason that demand would be inelastic

4. Which of the following refers to who has the legal assignment to pay a tax?

   A) Statutory incidence
   B) Actual incidence
   C) Ceteris Paribus
   D) Externality
   E) None of the above

5. Which of the following is true of a market which operates at a non-binding price floor?

   A) The market operates at a surplus
   B) The market operates at a shortage
   C) The market has externalities
   D) The market is considered a public good
   E) None of the above

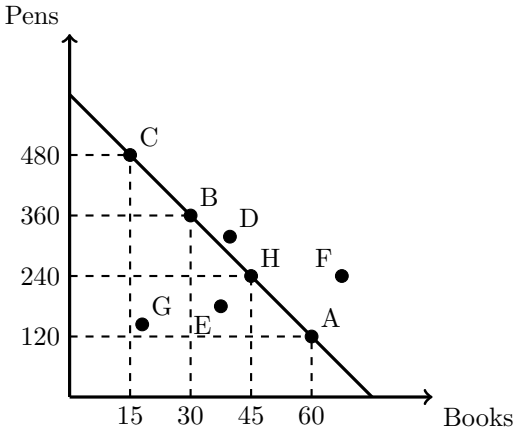
6. The demand for keyboards is inelastic while the supply for keyboards is elastic. Suppose the government enacts a $10 subsidy in this market. This subsidy is paid to producers for each unit sold. Who will receive the majority of the benefit of this subsidy?

   A) Consumers
   B) Producers
   C) Consumers and producers will have equal amounts of benefit
   D) Neither consumers nor producers will benefit from this subsidy
   E) None of the above

7. Which of the following is an example of a public good?

   A) Hospitals
   B) College education
   C) Clean air
   D) Welfare benefits
   E) All of the above are examples of public goods

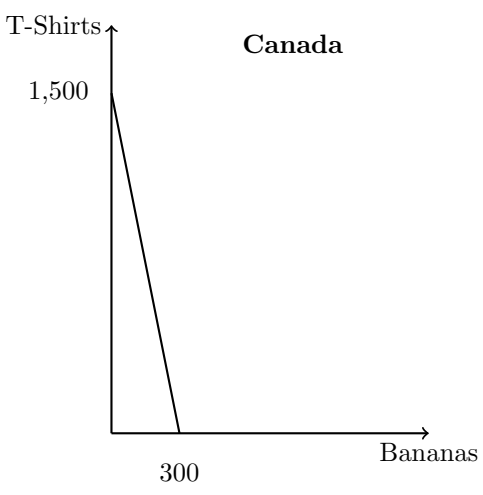
Use the following production possibilities frontier to answer question 8.

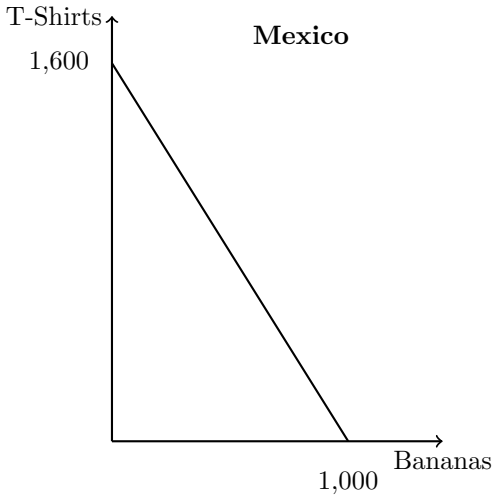


8. Which of the following points is considered impossible based on the PPF above? Note: The answer choice refers to the point of the corresponding letter.

   A)
   B)
   C)
   D)
   E)

Use the following production possibilities frontier for Canada and Mexico to answer questions 9-16. Assume each country solely produces bananas and t-shirts in this scenario.





9. What is the opportunity cost of one banana in Mexico?

   A) 0.2 t-shirts
   B) 0.625 t-shirts
   C) 1.5 t-shirts
   D) 1.6 t-shirts
   E) None of the above

10. Which of the following is true regarding absolute advantage?

    A) Canada has the absolute advantage in both goods.
    B) Mexico has the absolute advantage in both goods.
    C) Canada has the absolute advantage in t-shirts and Mexico has it in bananas
    D) Mexico has the absolute advantage in t-shirts and Canada has it in bananas
    E) Neither of these countries has the absolute advantage in either good

11. Which of the following is true regarding comparative advantage?

    A) Canada has the comparative advantage in both goods.
    B) Mexico has the comparative advantage in both goods.
    C) Canada has the comparative advantage in t-shirts and Mexico has it in bananas
    D) Mexico has the comparative advantage in t-shirts and Canada has it in bananas
    E) Neither of these countries has the comparative advantage in either good

12. Is the bundle of 1,000 bananas and 1,600 t-shirts efficient, inefficient, or impossible for Mexico?

    A) Efficient
    B) Inefficient
    C) Impossible
    D) None of the above

13. Is the bundle of 110 bananas and 940 t-shirts efficient, inefficient, or impossible for Canada?

    A) Efficient
    B) Inefficient
    C) Impossible
    D) None of the above

Both Canada and Mexico decide to specialize and trade. It is on you to know what goods each country specializes in. They then trade 500 bananas for 900 t-shirts. Use this information for questions 14-16.

14. Suppose Canada wants 600 t-shirts and produces efficiently. How many more bananas do they have due to specialization and trade, rather than isolationism?

    A) 120 more bananas
    B) 180 more bananas
    C) 320 more bananas
    D) 1,400 more bananas
    E) None of the above

15. Suppose Mexico wants 500 bananas and produces efficiently. How many more t-shirts do they have due to specialization and trade, rather than isolationism?

    A) 100 more t-shirts
    B) 387.5 more t-shirts
    C) 800 more t-shirts
    D) 900 more t-shirts
    E) None of the above

16. Suppose Mexico wants 900 t-shirts and produces efficiently. How many more bananas do they have due to specialization and trade, rather than isolationism?

    A) 160 more bananas

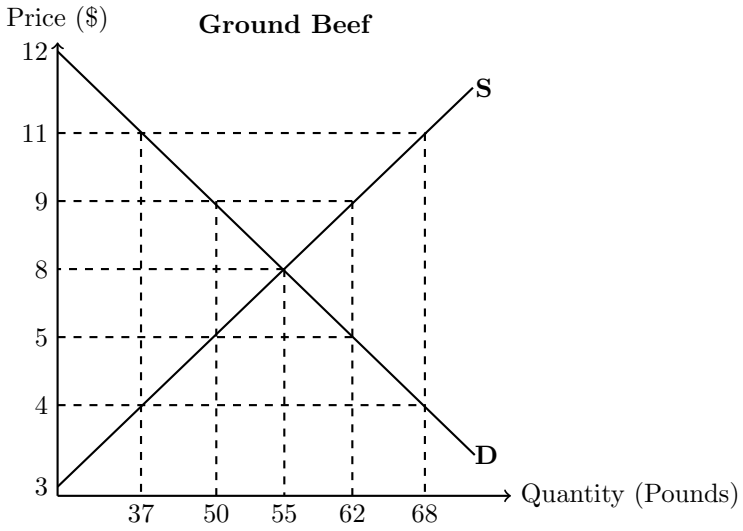
    B) 340 more bananas

    C) 437.5 more bananas

    D) 562.5 more bananas

    E) None of the above

Use the following graph representing the market for ground beef to answer questions 17-24.



17. Suppose the market for ground beef operates at a price of $9. Which of the following is true?

    A) This market operates at a surplus.

    B) This market operates at a shortage.

    C) This market operates at equilibrium.

    D) None of the above

18. Suppose the market for ground beef operates at a price of $5. What is the quantity demanded for ground beef?

    A) 37

    B) 50

    C) 55

    D) 62

    E) None of the above

19. Suppose the market for ground beef operates at a price of $8. What is the consumer and producer surplus in this market?

    A) $75 in consumer surplus and $137.50 in producer surplus

    B) $110 in consumer surplus and $137.50 in producer surplus

    C) $18.50 in consumer surplus and $250 in producer surplus

    D) $275 in consumer surplus and $250 in producer surplus

    E) None of the above

20. Suppose the market for ground beef operates at a price of $9. What is the consumer and producer surplus in this market?

    A) $75 in consumer surplus and $74 in producer surplus

    B) $110 in consumer surplus and $137.50 in producer surplus

    C) $75 in consumer surplus and $250 in producer surplus

    D) $110 in consumer surplus and $277.50 in producer surplus

    E) None of the above

21. Suppose the market for ground beef operates at a price of $11. What is the dead weight loss in this market?

    A) $10

    B) $18.50

    C) $50

    D) $63

    E) None of the above

22. Suppose the market for ground beef operates at a price of $4. Are producers better or worse off, and by how much, than they would be at equilibrium?

    A) $34 worse off

    B) $63.50 worse off

    C) $140 better off

    D) $167.50 better off

    E) None of the above

23. Suppose the government imposes a $5 price ceiling on ground beef. Are consumers better or worse off, and by how much, than they would be at equilibrium?

    A) $50 better off

    B) $60 worse off

    C) $165 better off

    D) $275 better off

    E) None of the above

24. Suppose the government is considering a $4 subsidy for ground beef. How much would this cost the government?

    A) $14

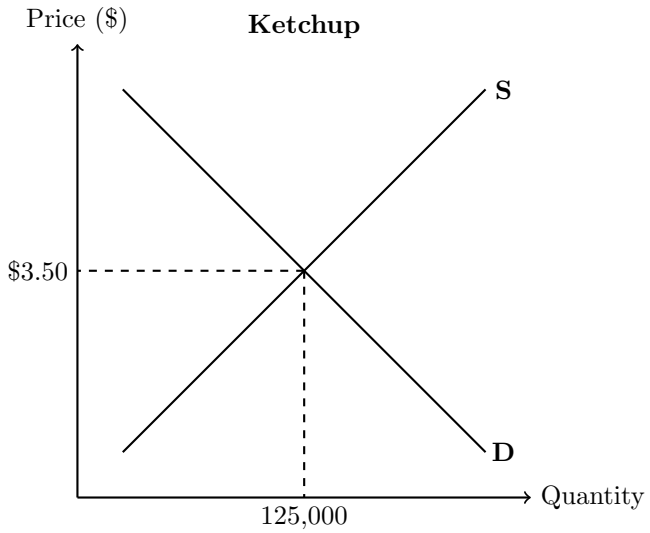
    B) $200

    C) $220

    D) $248

    E) None of the above

Use the following graph representing the market for ketchup to answer questions 25-28.



25. The market for ketchup begins in equilibrium. Suppose the price of hot dogs decreases. Which of the following is true?

    A) Market quantity decreases
    B) Price increases
    C) Price decreases
    D) Supply increases
    E) Supply decreases

26. The market for ketchup begins in equilibrium. Suppose the price of plastic bottles, used to bottle ketchup, decreases. Which of the following is true?

    A) Market quantity decreases
    B) Market quantity stays the same
    C) Demand decreases
    D) Demand increases
    E) Supply increases

27. The market for ketchup begins in equilibrium. Suppose a new health study comes out that finds ketchup to cause cancer. At the same time, the price of salsa increases. Which of the following is true? Assume: No one consumes salsa in place of ketchup.

    A) Price increases
    B) Price decreases
    C) Quantity increases
    D) Quantity decreases
    E) None of the above

28. The market for ketchup begins in equilibrium. Suppose China has terrible weather this year and a new health trend begins which promotes eating a gallon of ketchup a day. Which of the following is true? Note: China is the world leader in tomato production.

    A) Supply increases
    B) Price decreases
    C) Quantity increases
    D) Quantity decreases
    E) None of the above

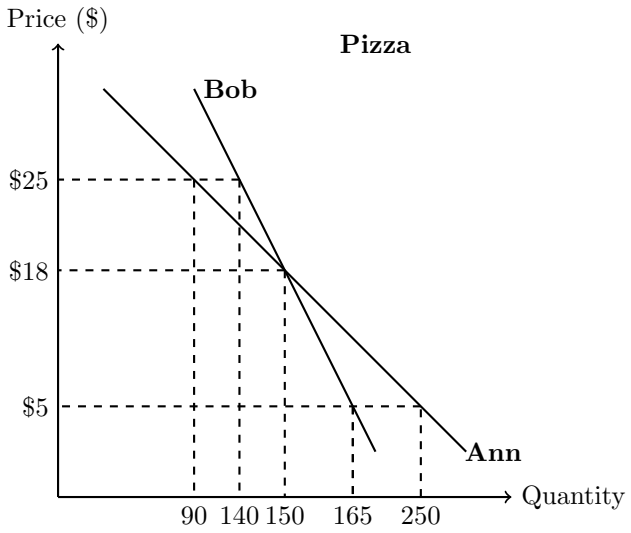
29. Suppose the school store runs a sale on Lululemon clothes. Lululemon clothes are now 10% less than they were before. During this sale, the school store sells 15% less Nike clothes. Which of the following is true?

    A) Lululemon and Nike clothes are substitute goods in consumption
    B) Lululemon and Nike clothes are complimentary goods in consumption
    C) Lululemon and Nike clothes are both substitute and complimentary goods in consumption
    D) Lululemon and Nike clothes are neither substitute nor complementary goods in consumption
    E) None of the above

30. Last year, a 70 inch TV cost \$500 and 100,000 were sold. This year, a 70 inch TV cost \$450 and 105,000 were sold. Assume nothing changed about these 70 inch TVs from last year to this year. Which of the following is true?

    A) TVs are a normal good
    B) TVs are an inferior good
    C) The elasticity of demand for TVs is $\frac{19}{41}$ (≈ 0.463)
    D) The elasticity of demand for TVs is $\frac{41}{19}$ (≈ 2.158)
    E) None of the above

Use the following graph of Ann and Bob's demand for pizza to answer questions 31 and 32.



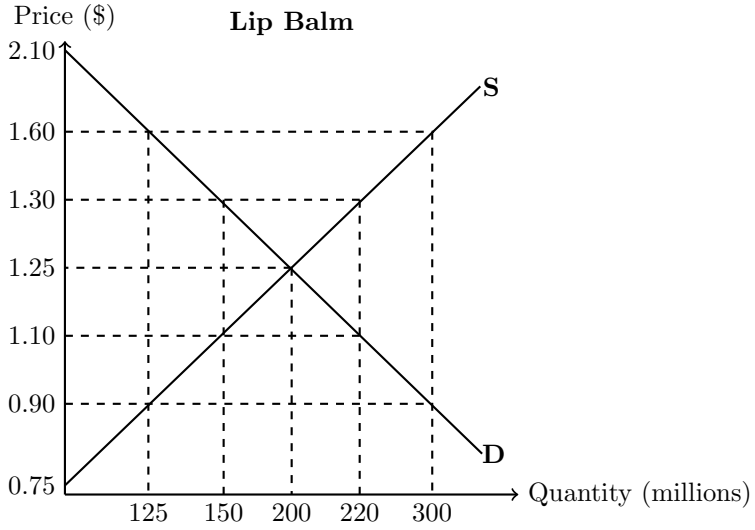
31. The price of pizza goes from \$5 to \$25. What is Ann's elasticity of demand?

    A) 0.12
    B) 0.44
    C) 0.71
    D) 1.54
    E) None of the above

32. The price of pizza goes from \$18 to \$25. Which of the following is true for Bob?

    A) Bob's demand for pizza is elastic
    B) Bob's demand for pizza is inelastic
    C) Pizza is a normal good for Bob
    D) Pizza is an inferior good for Bob
    E) None of the above

Use the following graph representing the market for lip balm to answer questions 33-40.



33. What is the consumer surplus in this market without any government intervention?

    A) $31.25
    B) $60
    C) $67.50
    D) $118.75
    E) None of the above

34. The government determines the price of lip balm is too high! They pass a law which creates a $1.10 price ceiling in this market. Does this make consumers better or worse off and by how much?

    A) $5 better off
    B) $10 worse off
    C) $33.75 worse off
    D) $85 better off
    E) None of the above

35. The government implements a $0.70 tax on lip balm. This tax is paid by consumers on top of the regular cost of lip balm (just like sales tax). Who bears the actual incidence of this tax?

    A) Consumers
    B) Producers
    C) Both Consumers and producers
    D) Neither consumers nor producers
    E) None of the above

36. The government implements a $0.70 tax on lip balm. This tax is paid by consumers on top of the regular cost of lip balm (just like sales tax). How much tax revenue will this generate?

    A) $87.50
    B) $105
    C) $140
    D) $210
    E) None of the above

37. The government implements a $0.70 tax on lip balm. This tax is paid by consumers on top of the regular cost of lip balm (similar to sales tax). How much worse off does this make producers?

    A) $0
    B) $18.75
    C) $23.75
    D) $40.63
    E) None of the above

38. The government subsidizes the market for lip balm. They implement a $0.20 subsidy which is paid to the producers of lip balm (e.g. ChapStick and Carmex). How much better off are consumers because of this subsidy?

    A) $0
    B) $25
    C) $60.50
    D) $95
    E) None of the above

39. The government subsidizes the market for lip balm. They implement a $0.20 subsidy which is paid to the producers of lip balm (e.g. ChapStick and Carmex). How much of this subsidy goes to consumers?

    A) $0
    B) $11
    C) $33
    D) $44
    E) None of the above

40. The government subsidizes the market for lip balm. They implement a $0.20 subsidy which is paid to the producers of lip balm (e.g. ChapStick and Carmex). How much dead weight loss does this subsidy create?

    A) $2
    B) $5
    C) $26.25
    D) $44
    E) None of the above

Answers

1. A
2. C
3. A
4. A
5. E
6. A
7. C
8. D
9. D
10. B
11. C
12. C
13. B
14. C
15. A
16. E
17. A
18. D
19. B
20. C
21. D
22. E
23. C
24. D
25. B
26. E
27. D
28. E
29. A
30. C
31. C
32. B
33. E
34. A
35. C
36. A
37. D
38. B
39. B
40. A

Practice Final

Principles of Microeconomics

Instructor: Colin Adams

Name: _____ **Date:** _____

This is a closed note, closed book exam. You have 75 minutes to complete this exam. You may not use a phone, outside materials, or your own calculator. Only a basic calculator provided by the instructor is allowed. Academic dishonesty will result in a zero and will be reported.

Answers

Write the letter of your selected answer choice (A, B, C, D, or E) in the blank next to each question number below. Only answers recorded on this answer sheet will be graded. Answers written on the question pages will not be considered. Make sure your responses are clearly written and easy to read. Unclear or unreadable answers will be marked incorrect and only one answer per question will be accepted. Each question is worth 2.5 percent of your total midterm grade.

1. _____	11. _____	21. _____	31. _____
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3. _____	13. _____	23. _____	33. _____
4. _____	14. _____	24. _____	34. _____
5. _____	15. _____	25. _____	35. _____
6. _____	16. _____	26. _____	36. _____
7. _____	17. _____	27. _____	37. _____
8. _____	18. _____	28. _____	38. _____
9. _____	19. _____	29. _____	39. _____
10. _____	20. _____	30. _____	40. _____

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Questions

1. Economists are referring to which of the following when they mention or use the term margin?

   A) The opportunity cost of the very first unit produced
   B) A firm's brand image in the mind of consumers
   C) The total utility someone gets from all units consumed
   D) The additional benefit or cost of one more unit
   E) None of the above

2. Which of the following do economists always assume of firms?

   A) Firms choose to maximize total revenue
   B) Firms aim to minimize total costs
   C) Firms have the ability to choose their price
   D) Firms want to maximize economic profits
   E) None of the above

3. Which of the following is always true in the long-run?

   A) All variable costs are zero
   B) Economic profits are zero
   C) All costs are variable
   D) Markets are efficient
   E) None of the above

4. Which of the following is not a characteristic of monopolies?

   A) There is only one seller
   B) There are many buyers
   C) Economic profits are positive
   D) The product has no close substitutes
   E) There are high barriers to entry

5. The market for emeralds is currently perfectly competitive. De Beers decides to buy control of all emerald mines in the world. They are now the sole producer of emeralds. Which of the following will occur in the market for emeralds due to De Beers buying all emerald mines?

   A) Producer surplus will decrease
   B) Price will decrease
   C) The market will become efficient
   D) Consumer surplus will increase
   E) Quantity will decrease

6. Which of the following refers to a market with many sellers, many buyers, similar products, and very low barriers to entry?

   A) Monopolistic Competition
   B) Oligopoly
   C) Perfect Competition
   D) Monopoly
   E) Cartel

7. Which of the following market structures has price takers?

   A) Perfect Competition
   B) Oligopolies
   C) Monopolies
   D) Monopolistic Competition
   E) None of the above

8. Which of the following is not a way for firms to maintain positive economic profits in the long-run?

   A) Supply at their lowest average total cost
   B) Evolve so that they cannot be copied
   C) Gain market power
   D) Create brand loyalty
   E) None of the above

9. A New York City library allowing for free admission to the library for locals (i.e. those who live in New York City and can prove it) is an example of which of the following?

   A) Perfect price discrimination
   B) Second degree price discrimination
   C) Third degree price discrimination
   D) Premium pricing
   E) None of the above

10. Paid video games selling character designs (often called skins) for $3 per design is an example of which of the following?

    A) Perfect price discrimination
    B) Second degree price discrimination
    C) Third degree price discrimination
    D) Premium pricing
    E) None of the above

11. The American National Red Cross is asking for donations via pamphlets. The pamphlets say the following, "Please consider donating to The American National Red Cross to help in emergency assistance and disaster relief in the US. You can donate by visiting www.redcross.org. The average donation is $30. Thank you for your consideration". This pamphlet is an example of which of the following strategies?

    A) Decoy
    B) Anchor
    C) Default
    D) Adverse selection
    E) None of the above

12. Life insurance being purchased by a terminally ill person is an example of which of the following?

    A) Adverse selection
    B) Default
    C) Moral Hazard
    D) Anchor
    E) All of the above

Use Table 15 representing the a firm which produces and sells luxury sunglasses. Table 1 shows their costs as well as revenues. Use Table 1 to answer questions 13-23.

Table 15

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
\$115	0				–	–	–	–	–		-350
\$110	1			375							
\$105	2		50								
\$100	3			420							
\$95	4						25				
\$90	5	350						100			
\$85	6		210								
\$80	7				70						
\$75	8							91.25			
\$70	9						55				

13. What is this firm's total variable cost if they produce zero sunglasses?

    A) -\$350
    B) \$0
    C) \$25
    D) \$350
    E) None of the above

14. What is this firm's profit if they choose to charge \$100 for their sunglasses?

    A) -\$190
    B) -\$120
    C) \$0
    D) \$120
    E) None of the above

15. What is the marginal cost of the eighth pair of sunglasses?

    A) \$0
    B) \$60
    C) \$70
    D) \$115
    E) None of the above

16. What is the total cost to produce three pairs of sunglasses?

    A) \$70
    B) \$350
    C) \$400
    D) \$420
    E) None of the above

17. What is the average fixed cost of producing five pairs of sunglasses?

    A) $30
    B) $50
    C) $70
    D) $350
    E) None of the above

18. What is the total variable cost of producing nine pairs of sunglasses?

    A) $55
    B) $115
    C) $495
    D) $845
    E) None of the above

19. What is the total fixed cost of producing seven pairs of sunglasses?

    A) $0
    B) $50
    C) $280
    D) $630
    E) None of the above

20. What is the marginal revenue of the second pair of glasses?

    A) -$75
    B) $0
    C) $100
    D) $105
    E) None of the above

21. How many sunglasses will this firm supply?

    A) 0
    B) 5
    C) 6
    D) 9
    E) None of the above

22. What price will this firm charge for their sunglasses?

    A) $70
    B) $90
    C) $100
    D) $115
    E) None of the above

23. What is this firm's profit?

    A) -$50
    B) $0
    C) $510
    D) $630
    E) None of the above

24. The market for cow's milk is perfectly competitive with all firms earning zero economic profit. Soy milk has just been invented which has an almost identical taste, but is healthier and better for the environment. Which of the following is a short-run effect of this phenomenon on the market for cow's milk?

    A) Prices increase
    B) Economic profits are positive
    C) Supply increases
    D) Firm quantity decreases
    E) None of the above

25. The market for cow's milk is perfectly competitive with all firms earning zero economic profit. Soy milk has just been invented which has an almost identical taste, but is healthier and better for the environment. Which of the following is a long-run effect of this phenomenon on the market for cow's milk?

    A) Market quantity increases
    B) Supply increases
    C) Prices increase
    D) Firm quantity decreases for those still in business
    E) None of the above

26. The market for salmon is perfectly competitive with all firms earning zero economic profit. Salmon fisherman can now catch salmon quicker due to a new fish vacuum. Which of the following is a short-run effect of this phenomenon on the market for salmon?

    A) Market quantity increases
    B) Price increases
    C) Supply decreases
    D) Demand increases
    E) None of the above

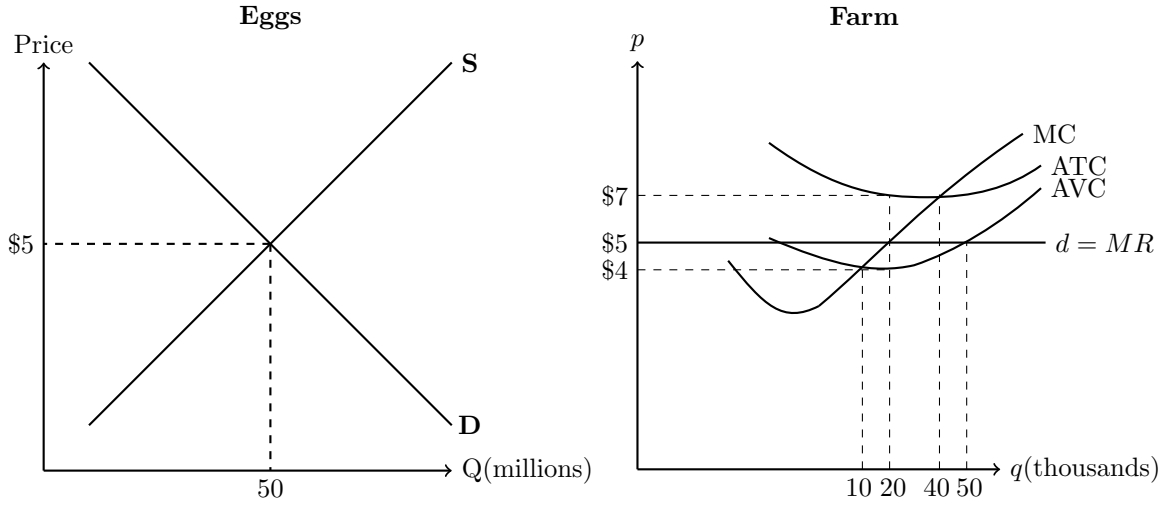
27. The market for salmon is perfectly competitive with all firms earning zero economic profit. Salmon fisherman can now catch salmon quicker due to a new fish vacuum. Which of the following is a long-run effect of this phenomenon on the market for salmon?

    A) Demand decreases
    B) Firm quantity decreases for those still in business
    C) Price decreases
    D) Market quantity increases
    E) None of the above

28. The market for salmon is perfectly competitive with all firms earning zero economic profit. Salmon fisherman can now catch salmon quicker due to a new fish vacuum. In the long-run, which of the following will be true in the market for salmon compared to before the invention of the salmon vacuum?

    A) Market quantity will be less
    B) Economic profits will be higher
    C) Prices will be lower
    D) There will be fewer salmon fisherman
    E) None of the above

Use the graphs below representing the market for eggs, which is perfectly competitive, and a farm in this market to answer questions 29-31.



29. How many eggs will this farm supply?

    A) 10,000
    B) 20,000
    C) 40,000
    D) 50,000
    E) None of the above

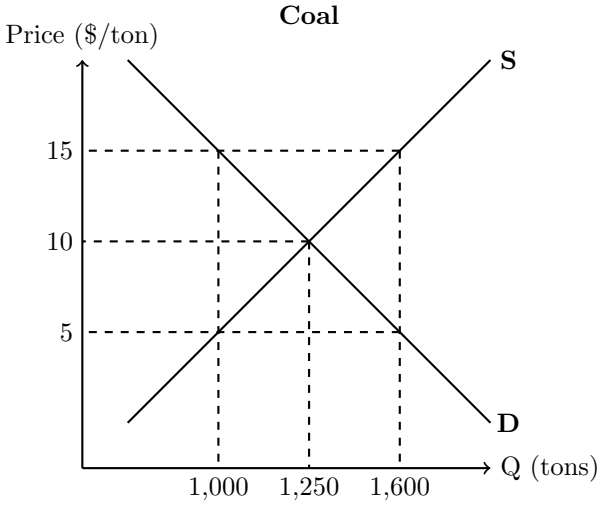
30. What is this farm's (economic) profit?

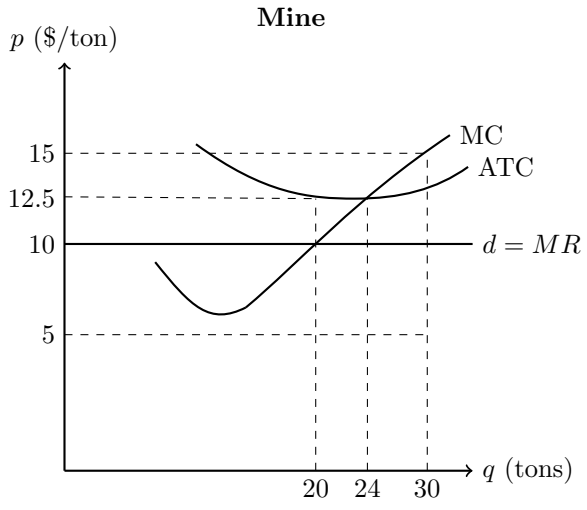
    A) -$60,000
    B) -$40,000
    C) -$30,000
    D) $0
    E) $40,000

31. Should this firm stay open?

    A) Yes
    B) No

Use the following graphs representing the market for coal, which is perfectly competitive, and a single mine which produces coal to answer questions 32-35.





32. How much will this mine charge for their coal?

A) $5 per ton
B) $10 per ton
C) $12.5 per ton
D) $15 per ton
E) None of the above

33. How many tons of coal will this mine supply?

A) 15 tons
B) 20 tons
C) 24 tons
D) 30 tons
E) None of the above

34. What is this mine's (economic) profit?

A) -$300
B) -$100
C) -$75
D) $50
E) None of the above

35. Which of the following won't occur in the long-run?

A) Price increases
B) Market quantity decreases
C) This mine's costs will decrease
D) $\pi = 0$
E) Firms enter the market

Table 16 represents possible transaction fees, represented as a percentage, that Visa and MasterCard may charge their customers and their corresponding profits for each possible outcome. Use Table 18 to answer questions 36-38.

Table 16

		MasterCard	
		5%	**2%**
Visa	**5%**	V: \$70 million MC: \$55 million	V: \$20 million MC: \$60 million
	3%	V: \$80 million MC: \$20 million	V: \$60 million MC: \$50 million

36. Which of the following is true?

    A) Neither Visa nor MasterCard have a dominant strategy
    B) Visa has a dominant strategy to charge 3% but MasterCard has no dominant strategy
    C) Visa has no dominant strategy but MasterCard has a dominant strategy to charge 5%
    D) Visa has a dominant strategy to charge 3% and MasterCard has a dominant strategy to charge 5%
    E) None of the above

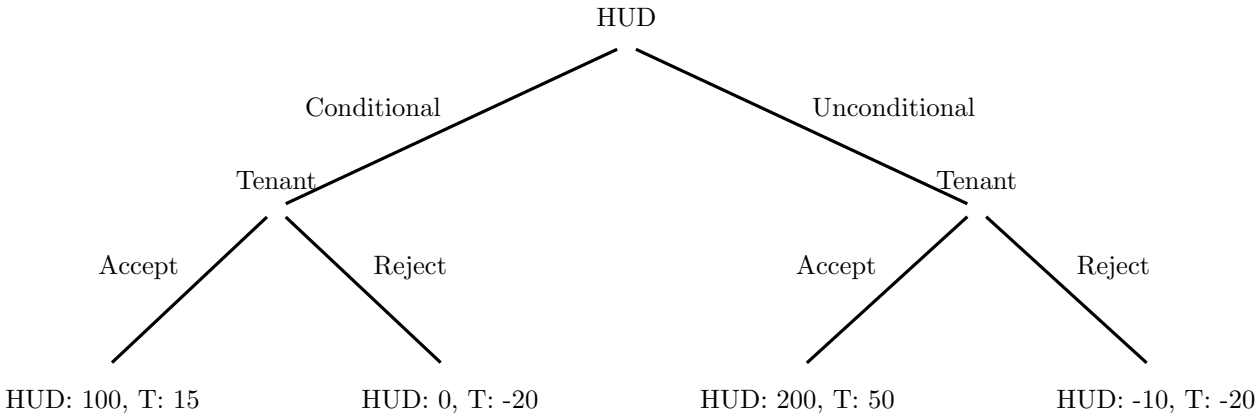
37. What will be Visa's profits?

    A) \$20 million
    B) \$60 million
    C) \$70 million
    D) \$80 million
    E) We are unable to determine Visa's profit for certain

38. Which of the following is true?

    A) There is an opportunity to collude where Visa charges 5% and MasterCard charges 5%
    B) There is an opportunity to collude where Visa charges 3% and MasterCard charges 5%
    C) There is an opportunity to collude where Visa charges 5% and MasterCard charges 2%
    D) There is an opportunity to collude where Visa charges 3% and MasterCard charges 2%
    E) There is no opportunity to collude here

Use the following extensive game representing an interaction between the US Department of Housing and Urban Development (HUD) and a potential tenant to answer questions 39 and 40. HUD can choose to offer conditional housing, which requires tenants to maintain a job, or unconditional housing to the potential tenant. Once HUD makes their decision, the potential tenant can choose to accept or reject the offer.



39. Which of the following is true?

A) Neither the potential tenant nor HUD have a dominant strategy
B) The potential tenant has a dominant strategy to accept the offer
C) The potential tenant has a dominant strategy to reject the offer
D) HUD has a dominant strategy to offer conditional housing
E) HUD has a dominant strategy to offer unconditional housing

40. Which of the following will be the outcome of this interaction?

A) HUD will offer conditional housing and the tenant will accept it
B) HUD will offer conditional housing and the tenant will reject it
C) HUD will offer unconditional housing and the tenant will accept it
D) HUD will offer unconditional housing and the tenant will reject it
E) We cannot know the outcome of this game for certain

Answers

Below is the completed Table 15.

Table 15 Answered

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
\$115	0	350	0	350	–	–	–	–	–	0	-350
\$110	1	350	25	**375**	25	350	25	375.00	110	110	-265
\$105	2	350	**50**	400	25	175	25	200.00	100	210	-190
\$100	3	350	70	**420**	20	116.67	23.33	140	90	300	-120
\$95	4	350	100	450	30	87.50	**25**	112.50	80	380	-70
\$90	5	**350**	150	500	50	70	30	**100**	70	450	-50
\$85	6	350	**210**	560	60	58.33	35	93.33	60	510	-50
\$80	7	350	280	630	**70**	50	40	90	50	560	-70
\$75	8	350	380	730	100	43.75	47.50	**91.25**	40	600	-130
\$70	9	350	495	845	115	38.89	**55**	93.89	30	630	-215

Below are the answers to questions 1-40.

1. D
2. D
3. C
4. C
5. E
6. A
7. A
8. A
9. C
10. D
11. B
12. A
13. B
14. B
15. E
16. D
17. C
18. C
19. E
20. C
21. C
22. E
23. A
24. D
25. E
26. A
27. E
28. D
29. B
30. B
31. A
32. B
33. B
34. E
35. E
36. E
37. B
38. A
39. B
40. C

Final

Principles of Microeconomics

Instructor: Colin Adams

Version: A

Name: _____ **Date:** _____

This is a closed note, closed book exam. You have 75 minutes to complete this exam. You may not use a phone, outside materials, or your own calculator. Only a basic calculator provided by the instructor is allowed. Academic dishonesty will result in a zero and will be reported.

Answers

Write the letter of your selected answer choice (A, B, C, D, or E) in the blank next to each question number below. Only answers recorded on this answer sheet will be graded. Answers written on the question pages will not be considered. Make sure your responses are clearly written and easy to read. Unclear or unreadable answers will be marked incorrect and only one answer per question will be accepted. Each question is worth 2.5 percent of your total midterm grade.

1. _____	11. _____	21. _____	31. _____
2. _____	12. _____	22. _____	32. _____
3. _____	13. _____	23. _____	33. _____
4. _____	14. _____	24. _____	34. _____
5. _____	15. _____	25. _____	35. _____
6. _____	16. _____	26. _____	36. _____
7. _____	17. _____	27. _____	37. _____
8. _____	18. _____	28. _____	38. _____
9. _____	19. _____	29. _____	39. _____
10. _____	20. _____	30. _____	40. _____

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Questions

1. What will always be true at firms' quantity supplied?

   A) Average total cost is minimized
   B) Economic profits are zero
   C) Marginal costs are minimized
   D) Marginal revenue equals marginal cost
   E) None of the above

2. Which of the following is included in the calculation of economic profit but not accounting profit?

   A) Total cost
   B) Fixed cost
   C) Variable cost
   D) Total revenue
   E) None of the above

3. Which of the following is not a characteristic of Oligopolies?

   A) Profits are zero in the long-run
   B) All firms produce an identical or similar product
   C) There are many buyers
   D) There are a few sellers
   E) There are barriers to entry

4. Suppose the market for drug A is currently in perfect competition. The market suddenly becomes a monopoly. Which of the following will occur as a result of this shift from perfect competition to a monopoly in the market for drug A?

   A) The market will become more efficient
   B) Consumer surplus will increase
   C) Producer surplus will decrease
   D) Price will increase
   E) All of the above will occur

5. Which of the following refers to a group of firms acting to maximize profits of the entire group?

   A) Monopoly
   B) Oligopoly
   C) Monopolistic Competition
   D) Cartel
   E) None of the above

6. Which of the following is not a characteristic of a firm which is a price searcher?

   A) Their demand is downward sloping
   B) They have market power
   C) The firm determines the price they charge
   D) They are not in perfect competition
   E) All of the above are characteristics of price searchers

7. Which of the following is an example of a firm having market power?

   A) A gas station charging more for their gas because they have nice bathrooms
   B) An online bookstore selling books also available from many other sellers
   C) A consumer choosing a cell phone plan because it has the lowest monthly cost
   D) A farmer selling soy at the market price
   E) None of the above

8. An auction, such as one on eBay, is most similar to which of the following types of price discrimination?

   A) Perfect price discrimination
   B) Second degree price discrimination
   C) Third degree price discrimination
   D) Premium pricing
   E) All of the above

9. Fast food chains offering combo meals which include an entree, drink, and side for one price is an example of which of the following?

   A) Perfect price discrimination
   B) Second degree price discrimination
   C) Third degree price discrimination
   D) Premium pricing
   E) All of the above

10. Which of the following is not true of price discrimination?

    A) It increases producer surplus
    B) Price discrimination increases efficiency
    C) It may make consumers better off
    D) Price discrimination is very common
    E) All of the above are true of price discrimination

11. You recently got an IPhone. When you turn on your IPhone and put your account information in, you are presented with a pop-up saying the following, "Please check this box if you would like to opt-out of receiving emails about Apple's newest products". This pop-up is an example of which of the following strategies?

    A) Default
    B) Adverse selection
    C) Decoy
    D) Anchor
    E) None of the above

12. A student slacking off after they have received a scholarship is an example of which of the following?

    A) Anchor
    B) Moral Hazard
    C) Decoy
    D) Adverse Selection
    E) None of the above

Table 17 represents a corn producer's costs as well as revenues at various quantities. Quantity is in bushels and price is per bushel. Use Table 17 to answer questions 13-23.

Table 17

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
\$50	0	150			–	–	–	–	–		
\$50	5		120								
\$50	10				20						
\$50	15						20				
\$50	20							27.50			
\$50	25		550			6					
\$50	30							30			
\$50	35			1,150							
\$50	40				80						
\$50	45						45				

13. What is this firm's total revenue if they sell zero bushels of corn?

    A) -\$150
    B) -\$20
    C) \$0
    D) \$150
    E) None of the above

14. What is the marginal cost of the thirtieth bushel of corn?

    A) \$20
    B) \$40
    C) \$200
    D) \$750
    E) None of the above

15. What is the average variable cost of producing thirty-five bushels of corn?

    A) \$0
    B) \$22
    C) \$25
    D) \$1,000
    E) None of the above

16. What is this firm's total revenue if they sell forty bushels of corn?

    A) \$50
    B) \$500
    C) \$2,000
    D) \$2,250
    E) None of the above

17. What is the marginal revenue of the tenth bushel of corn?

    A) $0
    B) $50
    C) $250
    D) $500
    E) None of the above

18. What is the total cost if this firm produces fifteen bushels of corn?

    A) $30
    B) $150
    C) $300
    D) $450
    E) None of the above

19. What is the average fixed cost of producing five bushels of corn?

    A) $5
    B) $15
    C) $30
    D) $150
    E) None of the above

20. What is the total variable cost of producing forty-five bushels of corn?

    A) $35
    B) $150
    C) $1,400
    D) $2,175
    E) None of the above

21. What is the average total cost of producing twenty-five bushels of corn?

    A) $22
    B) $25
    C) $28
    D) $550
    E) None of the above

22. How many bushels of corn will this firm supply?

    A) 0
    B) 10
    C) 30
    D) 35
    E) None of the above

23. What will be this firm's profit?

    A) $0
    B) $75
    C) $450
    D) $550
    E) None of the above

24. The market for white gold is perfectly competitive with all firms earning zero economic profit. The average income in the US increases by $10,000 this year. Which of the following is a short-run effect of this phenomenon on the market for white gold?

    A) Demand increases
    B) Price decreases
    C) Supply increases
    D) Market quantity decreases
    E) None of the above

25. The market for white gold is perfectly competitive with all firms earning zero economic profit. The average income in the US increases by $10,000 this year. Which of the following is a long-run effect of this phenomenon on the market for white gold?

    A) Market quantity decreases
    B) Price increases
    C) Supply decreases
    D) Firm quantity increases for those still in business
    E) None of the above

26. The market for cotton is perfectly competitive with all firms earning zero economic profit. A new synthetic cotton was invented which consumers prefer over natural cotton. Which of the following is a short-run effect of this phenomenon on the market for regular, natural cotton?

    A) Economic profits are positive
    B) Market quantity increases
    C) Supply increases
    D) Prices decrease
    E) None of the above

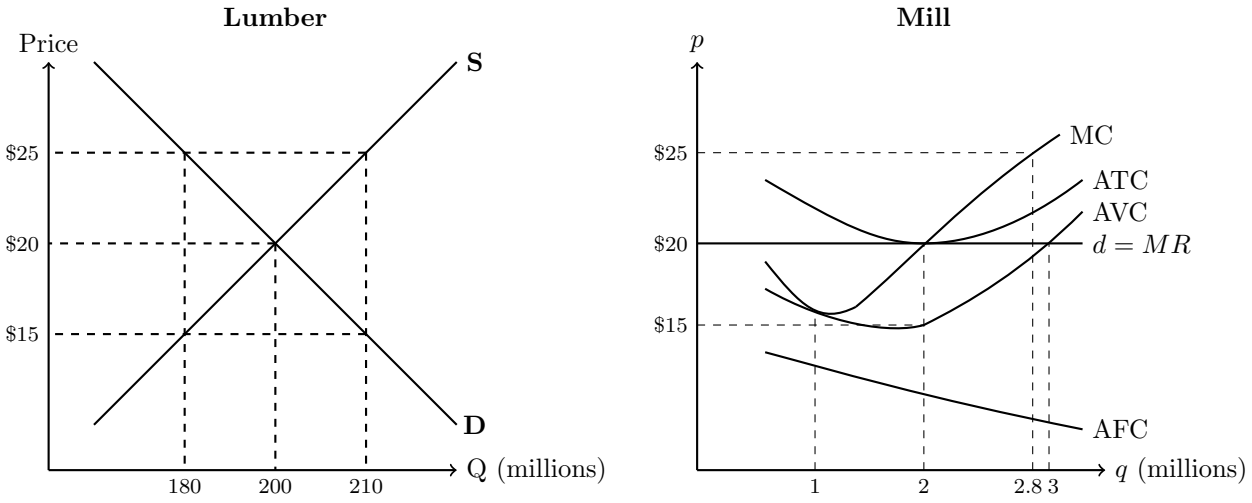
27. The market for cotton is perfectly competitive with all firms earning zero economic profit. A new synthetic cotton was invented which consumers prefer over natural cotton. Which of the following is a long-run effect of this phenomenon on the market for regular, natural cotton?

    A) Economic profits will be zero
    B) Demand decreases
    C) Market quantity increases
    D) Prices decrease
    E) None of the above

28. The market for cotton is perfectly competitive with all firms earning zero economic profit. A new synthetic cotton was invented which consumers prefer over natural cotton. In the long-run, which of the following will be true in the market for regular, natural cotton compared to before the introduction of synthetic cotton?

    A) The price will be higher
    B) The market quantity will be more
    C) Economic profits will be less
    D) Firm quantity will be more for those still in business
    E) None of the above

Use the graphs below representing the market for lumber, which is perfectly competitive, and a lumber mill in this market to answer questions 29-31.



29. How much lumber will this mill supply?

    A) 1,000,000
    B) 2,000,000
    C) 2,800,000
    D) 3,000,000
    E) None of the above

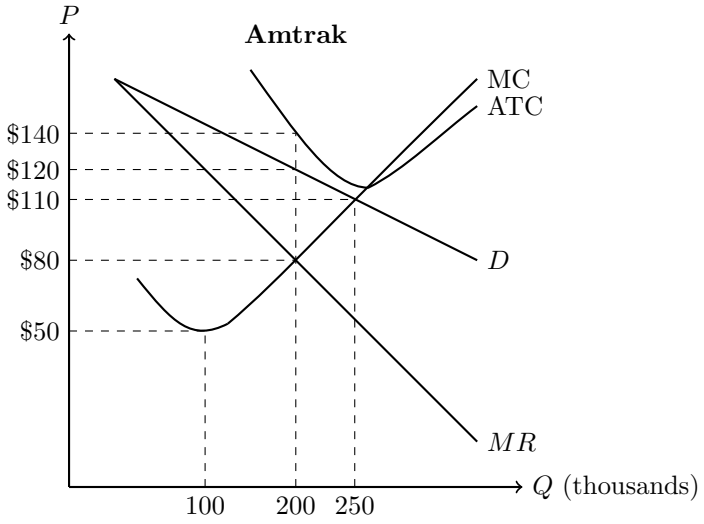
30. What is this lumber mill's (economic) profit?

    A) -$10,000,000
    B) $0
    C) $14,000,000
    D) $20,000,000
    E) We cannot tell based on these graphs

31. Should this firm stay open?

    A) Yes
    B) No

Use the graph below representing Amtrak, who has a monopoly on passenger train rides in the US, to answer questions 32-35.



32. How much will Amtrak charge for a passenger train ride?

    A) $50
    B) $80
    C) $110
    D) $120
    E) $140

33. How many train rides will occur in the US?

    A) 0
    B) 100,000
    C) 200,000
    D) 250,000
    E) We cannot tell based off the information on this graph

34. What is Amtrak's (economic) profit?

    A) -$12,000,000
    B) -$8,000,000
    C) -$4,000,000
    D) $0
    E) None of the above

35. The market for passenger train rides in the US is suddenly perfectly competitive. Which of the following will occur because of this?

    A) Consumer surplus will decrease
    B) The market will be more efficient
    C) Price will increase
    D) Market quantity will decrease
    E) Producer surplus will increase

Table 18 represents possible shipping prices that UPS and FedEx may charge their customers and their corresponding profits for each possible outcome. Use Table 18 to answer questions 36-38.

Table 18

		FedEx	
		$5	**$10**
UPS	**$5**	UPS: $4 billion FE: $3 billion	UPS: $6 billion FE: $2 billion
	$10	UPS: $3 billion FE: $4 billion	UPS: $2 billion FE: $5 billion

36. Which of the following is true?

A) Neither UPS nor FedEx have a dominant strategy

B) UPS has a dominant strategy to charge $5 but FedEx has no dominant strategy

C) UPS has no dominant strategy but FedEx has a dominant strategy to charge $10

D) UPS has a dominant strategy to charge $10 and FedEx has a dominant strategy to charge $5

E) None of the above

37. Which of the following will be the certain outcome?

A) UPS charges $5 and FedEx charges $5

B) UPS charges $10 and FedEx charges $5

C) UPS charges $5 and FedEx charges $10

D) UPS charges $10 and FedEx charges $10

E) We do not know the outcome of this game for certain

38. Which of the following is true?

A) There is an opportunity to collude where UPS charges $5 and FedEx charges $5

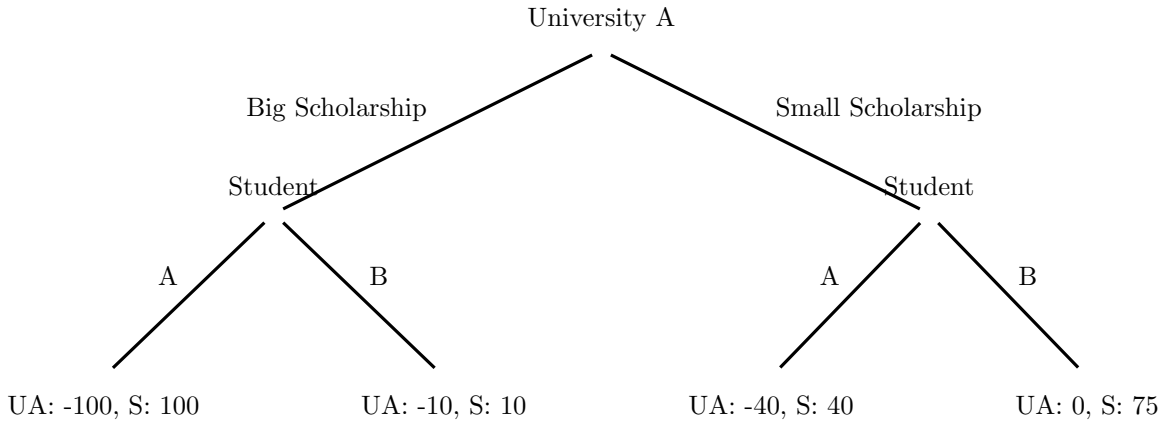
B) There is an opportunity to collude where UPS charges $10 and FedEx charges $5

C) There is an opportunity to collude where UPS charges $5 and FedEx charges $10

D) There is an opportunity to collude where UPS charges $10 and FedEx charges $10

E) There is no opportunity to collude here

Use the following extensive game representing an interaction between university A and a potential student to answer questions 39 and 40. The university can choose to offer either a big or small scholarship. After university A chooses which scholarship to offer, the potential student then chooses to go to either university A or university B.



39. Which of the following is true?

A) Neither the potential student nor university A have a dominant strategy
B) The potential student has a dominant strategy to go to university A
C) The potential student has a dominant strategy to go to university B
D) University A has a dominant strategy to offer a big scholarship
E) University A has a dominant strategy to offer a small scholarship

40. Which of the following will be the outcome of this interaction?

A) University A will offer a big scholarship and the student will go to university A
B) University A will offer a big scholarship and the student will go to university B
C) University A will offer a small scholarship and the student will go to university A
D) University A will offer a small scholarship and the student will go to university B
E) We cannot know the outcome of this game for certain

Answers

Below is the completed Table 17.

Table 17 Answered

P	Q	TFC	TVC	TC	MC	AFC	AVC	ATC	MR	TR	π
\$50	0	**150**	0	150	–	–	–	–	–	\$0	-150
\$50	5	150	**120**	270	24	30	24	54	50	250	-20
\$50	10	150	220	370	**20**	15	22	37	50	500	130
\$50	15	150	300	450	16	10	**20**	30	50	750	300
\$50	20	150	400	550	20	7.50	20	**27.50**	50	1,000	450
\$50	25	150	**550**	700	30	**6**	22	28	50	1,250	550
\$50	30	150	750	900	40	5	25	**30**	50	1,500	600
\$50	35	150	1,000	**1,150**	50	4.29	28.57	32.86	50	1,750	600
\$50	40	150	1,400	1,550	**80**	3.75	35	38.75	50	2,000	450
\$50	45	150	2,025	2,175	125	3.33	**45**	48.33	50	2,250	75

1. D
2. E
3. A
4. D
5. D
6. E
7. A
8. A
9. B
10. E
11. A
12. B
13. C
14. B
15. E
16. C
17. B
18. D
19. C
20. E
21. C
22. D
23. E
24. A
25. E
26. D
27. A
28. E
29. B
30. B
31. A
32. D
33. C
34. C
35. B
36. B
37. A
38. E
39. E
40. D