关注"PalmDrive Academy"公众号
获取最新资讯

添加"PalmDrive Academy"小助手
咨询课程详情

The College Board: Connecting Students to College Success

The College Board is a not-for-profit membership association whose mission is to connect students to college success and opportunity. Founded in 1900, the association is composed of more than 5,000 schools, colleges, universities, and other educational organizations. Each year, the College Board serves seven million students and their parents, 23,000 high schools, and 3,500 colleges through major programs and services in college admissions, guidance, assessment, financial aid, enrollment, and teaching and learning. Among its best-known programs are the SAT®, the PSAT/NMSQT®, and the Advanced Placement Program® (AP®). The College Board is committed to the principles of excellence and equity, and that commitment is embodied in all of its programs, services, activities, and concerns.

Equity Policy Statement

The College Board and the Advanced Placement Program encourage teachers, AP Coordinators, and school administrators to make equitable access a guiding principle for their AP programs. The College Board is committed to the principle that all students deserve an opportunity to participate in rigorous and academically challenging courses and programs. All students who are willing to accept the challenge of a rigorous academic curriculum should be considered for admission to AP courses. The Board encourages the elimination of barriers that restrict access to AP courses for students from ethnic, racial, and socioeconomic groups that have been traditionally underrepresented in the AP Program. Schools should make every effort to ensure that their AP classes reflect the diversity of their student population.

For more information about equity and access in principle and practice, contact the National Office in New York.

© 2006 The College Board. All rights reserved. College Board, AP Central, APCD, Advanced Placement Program, AP, AP Vertical Teams, CollegeEd, Pre-AP, SAT, and the acorn logo are registered trademarks of the College Board. Admitted Class Evaluation Service, connect to college success, MyRoad, SAT Professional Development, SAT Readiness Program, Setting the Cornerstones, and The Official SAT Teacher's Guide are trademarks owned by the College Board. PSAT/NMSQT is a registered trademark of the College Board and National Merit Scholarship Corporation. All other products and services may be trademarks of their respective owners. Permission to use copyrighted College Board materials may be requested online at: www.collegeboard.com/inquiry/cbpermit.html.

Visit the College Board on the Web: www.collegeboard.com.
AP Central is the official online home for the AP Program and Pre-AP: apcentral.collegeboard.com.

The 2005 AP® Microeconomics Released Exam

Contains:

- Multiple-Choice Questions, Answer Key, and Diagnostic Guide
- Free-Response Questions with:
  - Scoring Guidelines
  - Sample Student Responses
  - Scoring Commentary
- Statistical Information About Student Performance on the 2005 Exam

Materials included in this Released Exam may not reflect the current AP Course Description and exam in this subject, and teachers are advised to take this into account as they use these materials to support their instruction of students. For up-to-date information about this AP course and exam, please download **the official AP Course Description from the AP Central® Web site at apcentral.collegeboard.com**.

Chapter I: The AP® Process

- What Is the Purpose of the AP® Microeconomics Exam?
- Who Develops the Exam?
- How Is the Exam Developed?
  - Section I—Multiple Choice
  - Section II—Free Response
- Question Types
  - Multiple Choice
  - Free Response
- Scoring the Exam
  - Who Scores the AP Microeconomics Exam?
  - Ensuring Accuracy
  - How the Scoring Guidelines Are Created
  - Training Readers to Apply the Scoring Guidelines
  - Maintaining the Scoring Guidelines
- Preparing Students for the Exam

This chapter will give you a brief overview of the development and scoring processes for the AP Microeconomics Exam. You can find more detailed information at AP Central® (apcentral.collegeboard.com).

What Is the Purpose of the AP Microeconomics Exam?

The AP Microeconomics Exam is designed to allow students to demonstrate the knowledge, understanding, and skills equivalent to those gained by students who have successfully completed a college-level introductory course in microeconomics. The multiple-choice section of the exam covers the breadth of the curriculum in terms of knowledge, understanding, and application of economic concepts. The free-response section allows students to demonstrate their knowledge and ability to apply economic principles to analyzing and solving real world problems. The free-response questions are scored both for the correctness of the methodology applied and the depth of reasoning and analysis demonstrated. Qualifying grades on the AP Microeconomics Exam can allow students to begin their college careers with credit for an introductory microeconomics course and/or distribution credit for a course in the social sciences or humanities.

Who Develops the Exam?

The AP Economics Development Committee, working with Assessment Specialists at ETS, develops the exam. This committee, appointed by the College Board, is composed of six teachers from secondary schools, colleges, and universities in the United States. The members provide different perspectives: high school teachers offer valuable advice regarding realistic expectations when matters of content coverage, skills required, and clarity of phrasing are addressed. College and university faculty members ensure that the questions are at the appropriate level of difficulty for students planning to continue their studies at colleges and universities. Committee members typically serve for four years.

The Chief Reader also aids in the development process. The Chief Reader attends every committee meeting to ensure that the free-response questions selected for the exam can be scored reliably. The valuable experience of the Chief Reader and the committee members who have scored exams in past years contributes in significant ways to the ongoing improvement in the quality of the exam.

How Is the Exam Developed?

The Development Committee uses data from a curriculum survey of colleges and universities to set the exam specifications, determining what will be tested and how it will be tested. It also determines the appropriate level of difficulty for the exam, based on its understanding of the level of competence required for studying microeconomics at an introductory level in colleges and universities. Each AP Microeconomics Exam is the result of several stages of development that together span two or more years.

Section I—Multiple Choice

1. Development Committee members contribute multiple-choice questions as needed.
2. Professors currently teaching economics in various colleges and universities write and submit multiple-choice questions based on the content specifications of the exam as published in the *AP Economics Course Description*.
3. ETS Assessment Specialists then review and revise these questions and bring them to the committee for further review, refinement, and approval before being assembled into "pretests."

4. At the committee meetings, which are usually held twice a year, the committee members review, revise, and approve the submissions for pretesting.
5. From the pool of approved questions, ETS Assessment Specialists select an appropriate mix of questions for pretesting. Questions are pretested on college students who are completing the introductory-level course in microeconomics. The questions are then evaluated based on the pretest data and, if accepted, are moved to the pool of questions approved for use in future exams.
6. Based on the percentage weights given to each major category in the content specifications, ETS Assessment Specialists select an appropriate mix of questions from the pool of approved questions and assemble a draft exam.
7. The committee thoroughly reviews the draft exam in various stages of its development, revising both the individual questions and the mix of questions until it is satisfied with the result.

The Development Committee controls the difficulty level of the multiple-choice section by selecting a wide range of questions, a subset of which has been used in an earlier form of the exam.

Section II—Free Response

1. Well in advance of the exam administration, the members of the Development Committee write free-response questions for the exam. In addition, former committee members, former Chief Readers, and other college professors write free-response questions, which the committee reviews and considers. These questions are assembled and organized into a free-response pool from which the committee selects a combination of questions for an exam. Unlike the multiple-choice questions, the free-response questions are not pretested in colleges.
2. The committee selects an appropriate combination of three free-response questions, one long and two short, for Section II of the AP Microeconomics Exam.
3. The committee reviews and revises these questions several times during the development process to ensure that they are of the highest quality. With the assistance of the Chief Reader, the committee outlines correct and acceptable answers to each question and allocates the point distributions that will allow Readers to discriminate among the responses along a scoring scale given for each question. An ideal question enables the stronger students to demonstrate fully their knowledge, skills, and abilities while revealing the limitations of less proficient students.

Question Types

The 2005 AP Microeconomics Exam contains a 70-minute multiple-choice section consisting of 60 questions that account for two-thirds of the assigned grade, and a 60-minute free-response section consisting of three questions that account for one-third of the assigned grade. The two sections are designed to complement each other and measure a wide range of knowledge, understanding, and analytical skills.

Multiple-choice questions are useful for measuring a student's level of competence in a variety of contexts. In addition, they have three other strengths:

1. They are highly reliable. Reliability, or the likelihood that students of similar ability levels taking a different form of the exam will receive the same scores, is controlled more effectively with multiple-choice questions than with free-response questions.
2. They tap different levels of difficulty. Multiple-choice questions allow the Development Committee to include a selection of questions at various levels of difficulty, thereby ensuring that the measurement of differences in students' achievement is optimized. For AP Exams, the most important distinctions are between students earning the grades of 2 and 3 and grades of 3 and 4. These distinctions are usually best accomplished by using many questions of middle difficulty.
3. They facilitate year-to-year comparisons. The current form of the exam includes a number of questions from an earlier exam, allowing comparisons to be made between the scores of the earlier group of students and those of the current group. This information, along with other data, is used by the Chief Reader to establish AP grades that reflect the competence demanded by the Advanced Placement Program® and that can be legitimately compared with grades from earlier years.

Free-response questions on the AP Microeconomics Exam evaluate students' knowledge of economic concepts and skills, and their ability to apply economic methodology to analyze a given problem. The free-response section also allows students to demonstrate their ability to:

1. organize their thoughts;
2. respond personally to a situation; and
3. analyze and write a logically connected conclusion.

Scoring the Exam

Who Scores the AP Microeconomics Exam?

The multiple-choice answer sheets are machine scored. The teachers who score the free-response questions during the

AP Economics Reading are known as "Readers." The majority of these Readers are experienced faculty members who teach economics at a university or high school in the United States or Canada. Great care is taken to obtain a broad and balanced group of Readers. In addition to educational qualifications, some of the factors considered before appointing someone to the role are school locale and setting (urban, rural, and so on), gender, ethnicity, and years of teaching experience. University and high school economics teachers in the United States and Canada who are interested in applying to be a Reader at a future AP Reading can complete and submit an online application via AP Central (apcentral.collegeboard.com/readers) or request more information by e-mailing apreader@ets.org.

In June 2005, 165 economics teachers and professors gathered at the University of Nebraska-Lincoln to participate in the scoring session for the AP Economics Exams. Some of the most experienced members of this group were invited to serve as Question Leaders and Table Leaders. The remaining Readers were divided into groups (or tables), with each group advised and supervised by a Table Leader. Before the Reading, using the guidelines developed by the committee and the Chief Reader, ETS Assessment Specialists select sample student responses that exemplify performances at each score point. These samples are sent to the Chief Reader, Question Leaders, and Table Leaders to review against the scoring guidelines and identify any issues that may affect the scoring of the questions. The Question Leaders and Table Leaders arrive at the Reading site early to work with the Chief Reader to refine the scoring guidelines and to select the training samples. If additional samples are needed, the Question Leaders and Table Leaders read additional student responses at the site until all the samples needed for the training of Readers are found. All of the free-response questions, including those in the overseas and alternate exams, are scored at the Reading—a single, central scoring session under the supervision of the Chief Reader—and each of the three essay questions is scored by a different Reader.

Ensuring Accuracy

The primary goal of the scoring process is to have all Readers score their sets of free-response questions consistently, fairly, and with the same guidelines as the other Readers. This goal is achieved through the creation of detailed scoring guidelines, the thorough training of all Readers, and the various checks and balances that are applied throughout the AP Reading.

How the Scoring Guidelines Are Created

1. As the questions are being developed and reviewed before the Reading, the Development Committee and the Chief Reader discuss the scoring of the free-response questions to ensure that the questions can be scored validly and reliably. The committee supplies the preliminary rubrics that serve as the starting point for the scoring guidelines.
2. During the pre-Reading period, several important tasks are completed. The Chief Reader presents the preliminary scoring guidelines and works with the Question Leaders and Table Leaders to refine them. Then the Question Leaders and Table Leaders review and apply these scoring guidelines to varied sample student responses. Keeping in mind the committee's original intent, the Question Leaders revise and adjust the guidelines to accommodate the full range of actual responses the Readers are likely to encounter. In the process, the Question Leaders and Table Leaders select representative sample responses for the full range of scores for each question to be used for the training of Readers. Each Table Leader teaches the scoring guidelines to his/her assigned group of Readers, making sure that all Readers are able to apply the scoring guidelines consistently and reliably.
3. Once the scoring of student responses begins, no changes or modifications in the guidelines are made. Given the expertise of the Chief Reader and the analysis of many student responses by Question Leaders and Table Leaders in the pre-Reading period, these guidelines can be used to cover the whole range of student responses. Each Question Leader and Table Leader devotes a great deal of time and effort during the first day of the Reading to teaching the scoring guidelines for that particular question and to ensuring that everyone evaluating responses for that question understands the scoring guidelines and can apply them reliably.

Training Readers to Apply the Scoring Guidelines

Because Reader training is so vital in ensuring that students receive an AP grade that accurately reflects their performance, the process is thorough:

1. On the first day of the Reading, the Chief Reader provides an overview of the exam and the scoring process to the entire group of Readers. The Chief Reader announces the number of tables assigned for each question and introduces the Question Leaders and Table Leaders.
2. The Table Leaders and Readers then divide into their assigned questions with each group working on the particular question for which it receives specific training. All Readers scoring a particular question are trained together before breaking into their table assignments.

3. The Readers are trained to apply the scoring guidelines by reading and evaluating samples of student responses that were selected at the pre-Reading session as clear examples of the various score points and kinds of responses Readers are likely to encounter. The Table Leaders explain why the responses received particular scores.
4. Once a table successfully completes the scoring of the training samples, the Readers start a round-robin scoring process before they can score on their own. In the round-robin stage, each Reader at the table reads and scores a folder of 25 student responses. The scores given by each Reader are tabulated and compared in order to check and resolve any inconsistency in the application of the scoring guidelines. When the Table Leader is sure that the Readers understand the scoring guidelines and can apply them uniformly, the Table Leader informs the Chief Reader and Question Leader, and the scoring of student responses begins. Throughout the Reading, the Table Leaders reread responses from their tables to make sure that each Reader is applying the scoring guidelines accurately and consistently, with the Table Leaders, Question Leaders, or Chief Reader acting as arbitrator when needed.
5. Throughout the Reading, Readers are encouraged to seek advice from their Table Leaders when in doubt about a score. The Table Leaders, in turn, may consult with the Question Leader or Chief Reader. A student response that is problematic receives multiple readings and evaluations.

Maintaining the Scoring Guidelines

Throughout the Reading, the Question Leaders continue to reinforce the use of the scoring guidelines by asking their groups to review sample responses that they have already discussed as clear examples of particular scores, or to score new samples and discuss their scores with their Table Leaders. This procedure helps the Readers adhere to the standards of the group and helps to ensure that a student response will get the same score whether it is evaluated at the beginning, middle, or end of the Reading.

Here are some other methods that help ensure that everyone is adhering closely to the scoring guidelines:

- Table Leaders backread (reread) a portion of the student papers from each of the Readers in that Leader's group. This approach allows Table Leaders to guide their Readers toward appropriate and consistent interpretations of the scoring guidelines.
- Table Leaders are instructed to begin each day (especially in the early part of the Reading) with a round-robin scoring. This will help identify any departure from the scoring guidelines and maintain the consistent application of the guidelines throughout the Reading.
- The Chief Reader and Question Leaders monitor use of the full range of the scoring scale for the group and for each Reader by checking daily graphs of score distributions, and randomly reading selected papers to check for scoring consistency.

A potential problem is that a Reader could unintentionally score a student response higher or lower than it deserves because that same student performed well or poorly on other questions. The following steps are taken to prevent this so-called halo effect:

- A different Reader scores each question, and the student's identity is unknown to the Reader. Thus, each Reader can evaluate student responses without being prejudiced by knowledge about individual students.
- No marks of any kind are made on the students' papers. The Readers record the scores on a scannable form, which is identified only by the student's AP number. Readers are unable to see the scores given to other responses in the exam booklet.

Preparing Students for the Exam

The AP Microeconomics course is designed to be comparable to a typical one-semester course taught in a college or university economics department. Such a course may be offered in social science or behavioral science divisions in high school. The topic outline for the course was developed after a careful survey of colleges and universities offering the introductory-level course in microeconomics. It is important that the student and the AP teacher understand the type of college course toward which the AP course is directed.

Students develop the skills necessary to succeed on the AP Microeconomics Exam over the course of their study, understanding the concepts both in theory and application. The AP Microeconomics course should help them obtain the knowledge, skills, and abilities required to master the concepts outlined in the *AP Economics Course Description* and do well on the exam.

Chapter II: The 2005 AP Microeconomics Exam

- Exam Content and Format
- Giving a Practice Exam
- Instructions for Administering the Exam
- Blank Answer Sheet
- The Exam

Exam Content and Format

The 2005 AP Microeconomics Exam is two hours and 10 minutes in length and has two sections:

- A 70-minute multiple-choice section consisting of 60 questions accounting for 66.67 percent of the final grade.
- A 60-minute free-response section containing 3 essay questions accounting for 33.33 percent of the final grade. Ten minutes of the Section II time is for reading the questions and planning the answers.

2005 AP Microeconomics Exam Format

Multiple Choice (Section I)

60 questions ..... 70 minutes

Free Response (Section II)

3 questions ..... 60 minutes

The multiple-choice section covers the entire range of the content specifications. The three free-response questions that make up Section II of the exam allow students to demonstrate their knowledge of economic theory and principles, as well as their skills and ability to analyze and solve microeconomics problems.

Giving a Practice Exam

The following pages contain the instructions as they appeared in the 2005 *AP Examination Instructions* for administering the AP Microeconomics Exam. Following these instructions are a blank 2005 answer sheet and the 2005 AP Microeconomics Exam. If you plan to use this released exam to test your students, you may wish to use these instructions to create an exam situation that closely resembles an actual administration. If so, read only the directions in bold to the students; all other instructions are for the person administering the exam and need not be read aloud. Some instructions, such as those referring to the date, the time, and page numbers, are no longer relevant and should be ignored.

Another publication you might find useful is the *Packet of 10*—ten copies of the 2005 AP Microeconomics Exam, each with a blank answer sheet. For ordering information, see the Appendix.

Instructions for Administering the Microeconomics Exam
(from the 2005 *AP Examination Instructions* booklet)

Do not begin the exam instructions below until you have completed the appropriate General Instructions for your group. Make sure you begin the exam at the designated time. When you have completed the General Instructions, say:

[At the Macroeconomics administration only, say:]

It is Thursday morning, May 12, and you will be taking the AP Macroeconomics Exam.

[At the Microeconomics administration only, say:]

It is Thursday afternoon, May 12, and you will be taking the AP Microeconomics Exam.

[Continue for both administrations:]

In a moment, you will open the packet that contains your exam materials. By opening this packet, you agree to all of the AP Program's policies and procedures outlined in the 2004-05 *Bulletin for AP Students and Parents*. You may now open your exam packet and take out the Section I booklet, but do not open the booklet or the sealed Section II materials. Put the white seals aside. Read the statements on the front cover of Section I and look up when you have finished. ...

Now sign your name and write today's date. Look up when you have finished. ...

Now this is important. If you have never taken an AP Exam, print your full legal name. If you have taken an AP Exam in the past, print your name as listed on your AP Grade Report so that you will not generate multiple grade reports. Are there any questions? ...

Answer any questions. Then say:

Read the directions on the back cover. When you have finished, look up. ...

Are there any questions? ...

Answer any questions. Then say:

Section I is the multiple-choice portion of the exam. You may never discuss these specific multiple-choice questions at any time with anyone, including your teacher and other students. If you disclose these questions through any means, your AP Exam grade may be canceled. Are there any questions? ...

Answer any questions. Then say:

You must complete the answer sheet using a No. 2 pencil only. Mark all of your responses on your answer sheet, one response per question. Completely fill in the ovals. There are more answer ovals on the answer sheet than there are questions, so you will have unused ovals when you reach the end. Your answer sheet will be scored by machine; any stray marks or smudges could be read as answers. If you must, erase carefully and

completely. No credit will be given for anything written in the exam booklet. Scratch paper is not allowed, but you may use the margins or any blank space in the exam booklet for scratch work. Calculators are not allowed on any part of this exam. Are there any questions? ...

Answer all questions regarding procedure. Then say:

You have 1 hour and 10 minutes for this section. Open your Section I booklet and begin.

Note Start Time here _____. Note Stop Time here _____. You and your proctors should make sure students are marking their answers in pencil on the answer sheet, and that they are not looking at the sealed Section II booklet. After 1 hour and 10 minutes, say:

Stop working. Close your booklet and put your answer sheet on your desk, face up, with the fold to your left. I will now collect your answer sheet.

After you have collected an answer sheet from each student, say:

Take your seals and press one on each area of your exam booklet marked "PLACE SEAL HERE." Fold them over the open edges and press them to the back cover. When you have finished, place the booklet on your desk with the cover face up and the fold to your left. ...

I will now collect your Section I booklet. ...

As you collect the sealed Section I booklets, check to be sure that each student has signed the front cover. There is a 10-minute break between Sections I and II. When all Section I materials have been collected and accounted for and you are ready for the break, say:

We're going to have a short break, but first please listen to the break rules. Everything you placed under your chair at the beginning of the exam must remain there. You are not allowed to consult teachers, other students, or textbooks about the exam materials during the break. You may not make phone calls, send text messages, check e-mail, or access a computer or a handheld electronic device, such as a PDA or a calculator. Remember, you are not allowed to discuss the multiple-choice section of this exam with anyone at any time. Failure to adhere to any of these rules could result in invalidation of your grade. Please leave your sealed Section II package on top of your desk during the break. You may get up, talk, go to the restroom, or get a drink. Are there any questions? ...

Answer all questions regarding procedure. Then say:

Let's begin our break. Testing will resume at _____.

After the break, say:

May I have everyone's attention? Place your Student Pack on your desk. ...

You may now open the sealed Section II package. ...

Read the statements on the front cover of the pink booklet. When you have finished, look up. ...

Turn to the back cover and read Item 1 under "Important Identification Information." Use a pen with black or dark blue ink to print your identification information in the boxes. Note that you must print the first two letters of your LAST name and the first letter of your FIRST name. Look up when you have finished. ...

In Item 2, print your date of birth in the boxes. ...

Read Item 3 and copy the school code you printed on the front of your Student Pack into the boxes. ...

Read Item 4. ...

Read Item 5 and then place an AP number label on the shaded box. If you don't place an AP number label or write your AP number in this box, you risk the loss of your free-response booklet. Look up when you have finished. ...

Read Item 6. Printing the first, middle, and last initials of your legal name in the boxes constitutes your signature and your agreement to the conditions stated on the front cover. Print your initials and today's date, agreeing to these conditions. ...

Are there any questions? ...

Answer all questions regarding procedure. Then say:

I need to collect the Student Pack from anyone who will be taking another AP Exam. If you will be, put your Student Pack on your desk. You may keep it only if you will not take any more AP Exams this year. If you have no more AP Exams to take, place your Student Pack under your chair now. ...

While Student Packs are being collected, read the directions for Section II on the back cover of the pink booklet. Do not break the seal on the booklet until you are told to do so. When you have finished, look up. ...

Collect the Student Packs. Then say:

Are there any questions? ...

Answer all questions regarding procedure. Then say:

Now take the green insert and, in the upper left-hand corner of the cover, print your name, teacher, and school. ...

Read the directions on the front cover of the green insert. Look up when you have finished. ...

Section II begins with a 10-minute reading period. During the reading period, you will read and plan what you will write. You can make notes in the green insert. Are there any questions? ...

Answer any questions. Then say:

You may now open the green insert and begin the 10-minute reading period. Do not break the seal on the pink booklet yet.

Note Start Time here _____. Note Stop Time here _____. After 10 minutes, say:

> **Stop. The reading period is over. You have 50 minutes to complete Section II. You are responsible for pacing yourself in this section, and you may proceed freely from one question to the next. You must write your answers in the pink booklet using a pen with black or dark blue ink. It is not permissible to use other colored pens or pencils in drawing graphs or diagrams. Write the number of the question you are working on at the top of each page in the pink booklet. If you need more paper during the exam, raise your hand. At the top of each extra piece of paper you use, be sure to write your AP number and the number of the question you are working on. Open the sealed Section II booklet and begin.**

Note Start Time here _____. Note Stop Time here _____. You and your proctors should make sure students are using pens with black or dark blue ink and that they are writing their answers in the pink Section II booklet, not in the green insert. After 40 minutes, say:

> **There are 10 minutes remaining.**

After 10 minutes, say:

> **Stop working and close your exam booklet and green insert. Put your pink booklet on your desk, face up, with the fold to your left. Put your green insert next to it. Remain in your seat, without talking, while the exam materials are collected. ...**

Collect a pink Section II booklet and a green insert from every student. Check the back cover of each pink booklet to ensure that the student has completed the "Important Identification Information" area and placed an AP number label in the box. If the size of your group permits, check that answers have been written in the pink booklet and not in the green insert. The green inserts must be stored securely for no less than two school days. After the two-day holding time, the green inserts may be given to the appropriate AP teacher(s) for return to the students. When all exam materials have been collected and accounted for, say:

> **Your teacher will return your green insert to you in about two days. You may not discuss the free-response questions with anyone until that time. Remember that the multiple-choice questions may never be discussed or shared in any way at any time. You should receive your grade report in the mail about the third week of July. You are now dismissed.**

Exam materials should be put in locked storage until they are returned to the AP Program after your school's last administration. Before storing materials, check your list of students who are eligible for fee reductions and fill in the appropriate oval on their registration answer sheets. To receive a separate *Report to AP Teachers* or student grade roster for each AP class taught, fill in the appropriate oval in the "School Use Only" section of the answer sheet. See "Post-Exam Activities" in the 2005 *AP Coordinator's Manual.*

USE PENCIL ONLY FOR THE ENTIRE ANSWER SHEET.

10

NAME AND EXAM AREA – COMPLETE THIS AREA AT EVERY EXAM.

To maintain the security of the exam and the validity of my AP grade, I will allow no one else to see the multiple-choice questions and will seal the appropriate section when asked to do so. I will not discuss these questions with anyone at any time after the completion of the multiple-choice section. I am aware of and agree to the Program's policies and procedures as outlined in the 2004-05 *Bulletin for AP Students and Parents* – including using extended time only if I have been preapproved by College Board Services for Students with Disabilities.

A. SIGNATURE _____

Sign your legal name as it will appear on your college applications.

CollegeBoard AP

Answer Sheet for May 2005, Form 4BBP
PAGE 1

PLACE AN AP® NUMBER LABEL OR WRITE YOUR AP NUMBER HERE AT EVERY EXAMINATION.

B. LEGAL NAME — Omit spaces, apostrophes, Jr. or II.

Legal Last Name - first 15 letters | Legal First Name - first 12 letters | MI

C. YOUR AP NUMBER

D. ADMIN. DAY IN MAY

E. TIME OF DAY

- 6 AM
- 7 AM
- 8 AM
- 9 AM
- 10 AM
- 11 AM
- 12 PM
- 1 PM
- 2 PM
- 3 PM
- 4 PM
- 5 PM

STUDENT INFORMATION AREA – COMPLETE THIS AREA ONLY ONCE.

I. SEX

1. Male
2. Female

J. CURRENT GRADE LEVEL

1. Not yet in 9th grade
2. 9th grade
3. 10th grade
4. 11th grade
5. 12th grade
6. No longer in high school

K. DATE OF BIRTH

Month	Day	Year
01 Jan.	0 0	0 0
02 Feb.	1 1	1 1
03 Mar.	2 2	2 2
04 Apr.	3 3	3 3
05 May	4 4	4 4
06 June	5 5	5 5
07 July	6 6	6 6
08 Aug.	7 7	7 7
09 Sept.	8 8	8 8
10 Oct.	9 9	9 9
11 Nov.		
12 Dec.		

L. SOCIAL SECURITY NUMBER (Optional, but preferred)

M. ETHNIC GROUP

1. American Indian or Alaskan Native
2. Black or African American
3. Mexican American or Chicano
4. Asian, Asian American, or Pacific Islander
5. Puerto Rican
6. South American, Latin American, Central American, or other Hispanic
7. White
8. Other

N. EXPECTED DATE OF COLLEGE ENTRANCE

F Fall	0 2005
W Winter/Spring	1 2006
S Summer	2 2007
U Undecided	3 2008

P. Complete ONLY if you are a SOPHOMORE or a JUNIOR.

I want the College Board to send information about me to colleges, universities, and government scholarship programs interested in students like me.

○ Yes ○ No

O. WHAT LANGUAGE DO YOU KNOW BEST?

- ○ English
- ○ English and another language about the same
- ○ Another language

F. AP EXAM I AM TAKING USING THIS ANSWER SHEET

Print examination name & form designation: _____

Fill in the appropriate oval below for examination name and number.

07	U.S. History	53	Geography: Human
13	Art History	55	German Language
14	Art: Studio Drawing	57	Gov. & Pol.: U.S.
15	Art: Studio 2-D Design	58	Gov. & Pol.: Comp.
16	Art: Studio 3-D Design	60	Latin: Vergil
20	Biology	61	Latin Literature
25	Chemistry	66	Calculus AB
31	Computer Science A	68	Calculus BC
33	Computer Science AB	75	Music Theory
34	Economics: Micro	78	Physics B
35	Economics: Macro	80	Physics C: Mech. ○ E & M ○
36	Eng. Language & Comp.	85	Psychology
37	Eng. Literature & Comp.	87	Spanish Language
40	Environmental Science	89	Spanish Literature
43	European History	90	Statistics
48	French Language	93	World History
51	French Literature		

G. ONLINE PROVIDER CODE

H. DO NOT COMPLETE THIS SECTION UNLESS INSTRUCTED TO DO SO.

Essay Choices

Fill in the ovals that correspond to the numbers of the essay questions you answered in this examination.

1	7
2	8
3	9
4	10
5	11
6	12

Q. PARENTAL EDUCATION LEVEL

Indicate the highest level of education completed by your parents by filling in the appropriate oval once in each column.

Father / Male Guardian	Mother / Female Guardian	
○	○	Grade school
○	○	Some high school
○	○	High school diploma or equivalent
○	○	Business or trade school
○	○	Some college
○	○	Associate or two-year degree
○	○	Bachelor's or four-year degree
○	○	Some graduate or professional school
○	○	Graduate or professional degree

ETS USE ONLY

Exam 1	Exam 2
0 0	0 0
1 1	1 1
2 2	2 2
3 3	3 3
4 4	4 4
5 5	5 5
6 6	6 6
7 7	7 7
8 8	8 8
9 9	9 9

SCHOOL USE ONLY

Report to Teachers/Student Grade Roster: 1 2 3 4 5 6 7 8 9

Fee Reduction Granted (see *AP Coordinator's Manual* for detailed instructions)
○ Option 1 ○ Option 2 ○ Option 3

I.N. 726476 18112 • 00657 • TF124E2184 Q3047/06-09 MH04293

1 2 3 4

R. This section is for the survey questions in the AP Student Pack. (Do not put responses to exam questions in this section.) Be sure each mark is dark and completely fills the oval.

1	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	4	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	7	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ
2	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	5	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	8	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ
3	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	6	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	9	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ

Do not complete this section unless instructed to do so.

S. If this answer sheet is for the French Language, French Literature, German Language, Spanish Language, or Spanish Literature Examination, please answer the following questions. (Your responses will not affect your grade.)

1. Have you lived or studied for one month or more in a country where the language of the exam you are now taking is spoken? ◯ Yes ◯ No
2. Do you regularly speak or hear the language at home? ◯ Yes ◯ No

Indicate your answers to the exam questions in this section. If a question has only four answer options, do not mark option E. Your answer sheet will be scored by machine. Use only No. 2 pencils to mark your answers on pages 2 and 3 (one response per question). After you have determined your response, be sure to completely fill in the oval corresponding to the number of the question you are answering. Stray marks and smudges could be read as answers, so erase carefully and completely. Any improper gridding may affect your grade.

1	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	26	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	51	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
2	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	27	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	52	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
3	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	28	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	53	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
4	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	29	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	54	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
5	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	30	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	55	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
6	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	31	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	56	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
7	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	32	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	57	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
8	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	33	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	58	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
9	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	34	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	59	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
10	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	35	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	60	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
11	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	36	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	61	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
12	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	37	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	62	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
13	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	38	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	63	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
14	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	39	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	64	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
15	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	40	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	65	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
16	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	41	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	66	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
17	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	42	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	67	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
18	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	43	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	68	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
19	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	44	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	69	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
20	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	45	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	70	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
21	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	46	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	71	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
22	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	47	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	72	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
23	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	48	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	73	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
24	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	49	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	74	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							
25	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	50	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	75	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ							

FOR QUESTIONS 76-151, SEE PAGE 3.

DO NOT WRITE IN THIS AREA.

CollegeBoard AP

PAGE 3

MULTIPLE-CHOICE BOOKLET SERIAL NUMBER
___ ___ ___ ___ ___ ___

Be sure each mark is dark and completely fills the oval. If a question has only four answer options, do not mark option E.

76	A	B	C	D	E	101	A	B	C	D	E	126	A	B	C	D	E
77	A	B	C	D	E	102	A	B	C	D	E	127	A	B	C	D	E
78	A	B	C	D	E	103	A	B	C	D	E	128	A	B	C	D	E
79	A	B	C	D	E	104	A	B	C	D	E	129	A	B	C	D	E
80	A	B	C	D	E	105	A	B	C	D	E	130	A	B	C	D	E
81	A	B	C	D	E	106	A	B	C	D	E	131	A	B	C	D	E
82	A	B	C	D	E	107	A	B	C	D	E	132	A	B	C	D	E
83	A	B	C	D	E	108	A	B	C	D	E	133	A	B	C	D	E
84	A	B	C	D	E	109	A	B	C	D	E	134	A	B	C	D	E
85	A	B	C	D	E	110	A	B	C	D	E	135	A	B	C	D	E
86	A	B	C	D	E	111	A	B	C	D	E	136	A	B	C	D	E
87	A	B	C	D	E	112	A	B	C	D	E	137	A	B	C	D	E
88	A	B	C	D	E	113	A	B	C	D	E	138	A	B	C	D	E
89	A	B	C	D	E	114	A	B	C	D	E	139	A	B	C	D	E
90	A	B	C	D	E	115	A	B	C	D	E	140	A	B	C	D	E
91	A	B	C	D	E	116	A	B	C	D	E	141	A	B	C	D	E
92	A	B	C	D	E	117	A	B	C	D	E	142	A	B	C	D	E
93	A	B	C	D	E	118	A	B	C	D	E	143	A	B	C	D	E
94	A	B	C	D	E	119	A	B	C	D	E	144	A	B	C	D	E
95	A	B	C	D	E	120	A	B	C	D	E	145	A	B	C	D	E
96	A	B	C	D	E	121	A	B	C	D	E	146	A	B	C	D	E
97	A	B	C	D	E	122	A	B	C	D	E	147	A	B	C	D	E
98	A	B	C	D	E	123	A	B	C	D	E	148	A	B	C	D	E
99	A	B	C	D	E	124	A	B	C	D	E	149	A	B	C	D	E
100	A	B	C	D	E	125	A	B	C	D	E	150	A	B	C	D	E
												151	A	B	C	D	E

ETS USE ONLY

	R	W	FS
PT1			
PT2			
PT3			
PT4			
TOT			
EQ			
TA 1			
TA 2			

DO NOT WRITE IN THIS AREA.

T. YOUR MAILING ADDRESS

HOME ADDRESS AND SCHOOL AREA – COMPLETE THIS AREA ONLY ONCE.

- YOUR GRADE REPORT WILL BE MAILED TO THIS ADDRESS IN JULY
- USING THE ABBREVIATIONS GIVEN IN YOUR AP STUDENT PACK, PRINT YOUR ADDRESS IN THE BOXES BELOW. IF YOUR INTERNATIONAL ADDRESS DOES NOT FIT, SEE ITEM V, BELOW.
- INDICATE A SPACE IN YOUR ADDRESS BY LEAVING A BLANK BOX AND DO NOT GRID THAT COLUMN. ONLY ONE OVAL IS TO BE FILLED IN FOR EACH COLUMN.

Street

City

STATE

1	AL	28	NE
2	AK	29	NV
3	AZ	30	NH
4	AR	31	NJ
5	CA	32	NM
6	CO	33	NY
7	CT	34	NC
8	DE	35	ND
9	DC	36	OH
10	FL	37	OK
11	GA	38	OR
12	HI	39	PA
13	ID	40	RI
14	IL	41	SC
15	IN	42	SD
16	IA	43	TN
17	KS	44	TX
18	KY	45	UT
19	LA	46	VT
20	ME	47	VA
21	MD	48	WA
22	MA	49	WV
23	MI	50	WI
24	MN	51	WY
25	MS	52	Puerto Rico
26	MO		
27	MT	53	Other

ZIP OR POSTAL CODE

U. COUNTRY CODE

W. TELEPHONE NUMBER

Area Code

INTERNATIONAL TELEPHONE

If your international telephone number is longer than 10 digits, write in the entire number below.

Copyright © 2005 College Entrance Examination Board. All rights reserved. College Board, Advanced Placement Program, AP, and the acorn logo are registered trademarks of the College Entrance Examination Board.

FOR STUDENTS OUTSIDE THE U.S. ONLY

V. If the address gridded above is not complete enough for delivery of your grade report, please fill in this oval and print your complete address below. ⟶ ◯

Address

Address

City State or Province

Country ZIP or Postal Code

X. SCHOOL YOU ATTEND

School Code

School Name, City, and State

◀ – Make sure you have correctly entered your School Code, filled in the appropriate ovals, and completed the information below.

School Name

City

State

Y. COLLEGE TO RECEIVE YOUR AP GRADE

College Code

College Name and Address

Using the College Code list in the AP Student Pack, indicate the **one** college that you want to receive your AP Grade Report by writing in the college code number and gridding the ovals to the left. Also complete the information below.

College Name

City

State

MICROECONOMICS

Two hours and 10 minutes are allotted for this exam: 1 hour and 10 minutes for Section I, which consists of multiple-choice questions; and 60 minutes for Section II, which consists of three mandatory essay questions. Ten minutes of Section II are devoted to a mandatory reading period. Section I is printed in this exam booklet. Section II is printed in a separate booklet.

SECTION I

Time—1 hour and 10 minutes

Number of questions—60

Percent of total grade—66 2/3

Section I of this exam contains 60 multiple-choice questions. Therefore, please be careful to fill in only the ovals that are preceded by numbers 1 through 60 on your answer sheet.

General Instructions

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE INSTRUCTED TO DO SO.

INDICATE ALL YOUR ANSWERS TO QUESTIONS IN SECTION I ON THE ANSWER SHEET. No credit will be given for anything written in this exam booklet, but you may use the booklet for notes or scratchwork. After you have decided which of the suggested answers is best, COMPLETELY fill in the corresponding oval on the answer sheet. Give only one answer to each question. If you change an answer, be sure that the previous mark is erased completely.

Example:

Chicago is a

(A) state
(B) city
(C) country
(D) continent
(E) village

Sample Answer



Many students wonder whether or not to guess the answers to questions about which they are not certain. In this section of the exam, as a correction for haphazard guessing, one-fourth of the number of questions you answer incorrectly will be subtracted from the number of questions you answer correctly. It is improbable, therefore, that mere guessing will improve your grade significantly; it may even lower your grade, and it does take time. If, however, you are not sure of the best answer but have some knowledge of the question and are able to eliminate one or more of the answer choices as wrong, your chance of answering correctly is improved, and it may be to your advantage to answer such a question.

Use your time effectively, working as rapidly as you can without losing accuracy. Do not spend too much time on questions that are too difficult. Go on to other questions and come back to the difficult ones later if you have time. It is not expected that everyone will be able to answer all of the multiple-choice questions.

MICROECONOMICS

Section I

Time—70 minutes

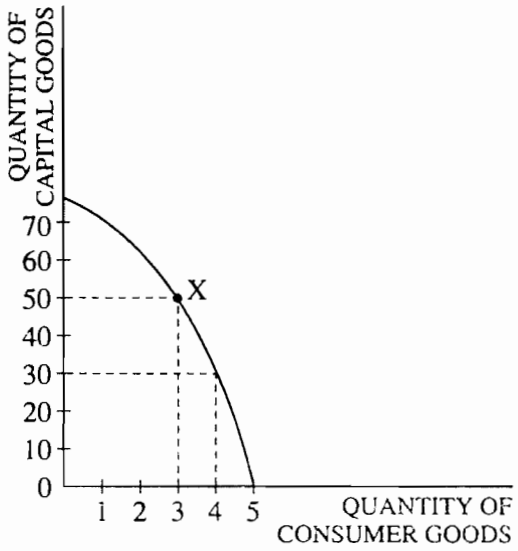
60 Questions

Directions: Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that is best in each case and then fill in the corresponding oval on the answer sheet.

1. A professor hires two aides, assigning them the tasks of reading student papers and of typing lecture notes on a computer. One of the aides, Ben, can read 1 page of a student paper per minute or type 50 words of lecture notes per minute, and the other aide, Ann, can read 3 pages of a student paper per minute or type 60 words of lecture notes per minute.

   Which of the following statements is true?

   (A) Ann has a comparative advantage in reading student papers, and Ben has a comparative advantage in typing lecture notes.
   (B) Ann has an absolute advantage in reading student papers, and Ben has an absolute advantage in typing lecture notes.
   (C) Ben has a comparative advantage in reading student papers, and Ann has a comparative advantage in typing lecture notes.
   (D) Ben has a comparative advantage in both reading student papers and typing lecture notes.
   (E) Ben has an absolute advantage in both reading student papers and typing lecture notes.



2. According to the graph above, if a country is currently producing at point X, the opportunity cost of producing another consumer good is

   (A) 20 capital goods
   (B) more than 20 capital goods
   (C) fewer than 20 capital goods
   (D) 20 consumer goods
   (E) fewer than 20 consumer goods

Unauthorized copying or reuse of any part of this page is illegal.

3. To alleviate a financial crisis, a university increases student fees. This action will increase university revenues if the price elasticity of demand for university education is

   (A) inelastic
   (B) unit elastic
   (C) elastic
   (D) equal to the price elasticity of supply
   (E) equal to one

4. Which of the following will occur if the government imposes a price ceiling below the equilibrium price of a good?

   (A) The quantity sold will exceed the equilibrium quantity.
   (B) Firms' total revenues will increase if demand is price elastic.
   (C) There will be a shortage in the market.
   (D) All firms will shut down, since price is below the equilibrium price.
   (E) Price will exceed the marginal cost of producing the last unit sold.

5. Which of the following will decrease the demand for beef?

   (A) An increase in the price of pork, if pork and beef are substitute goods
   (B) An increase in the price of potatoes, if potatoes and beef are complementary goods
   (C) A decrease in the cost of transporting beef to consumers
   (D) An increase in the income levels of most consumers, if beef is a normal good
   (E) Research showing beef is better for your health than chicken

6. If the price of a firm's variable input increases, which of the following will occur?

   (A) The firm will decrease its level of production.
   (B) The price of the good will decrease in the short run.
   (C) The firm's marginal costs will decrease at every level of output.
   (D) The firm's average fixed cost will decrease.
   (E) More firms will enter the industry in the long run.

7. In a given time period, a person consumes more and more of a good or service and, as a result, enjoys each additional unit less and is willing to pay less for each additional unit. This behavior is consistent with the law of

   (A) diminishing returns
   (B) diminishing marginal product
   (C) diminishing marginal utility
   (D) increasing costs
   (E) scarce resources

8. Which of the following best describes the relationship between the average total cost curve and the marginal cost curve in the short run?

   (A) If the average total cost curve is rising, the marginal cost curve is above the average total cost curve.
   (B) If the average total cost curve is rising, the marginal cost curve is below the average total cost curve.
   (C) If the average total cost curve is above the marginal cost curve, the marginal cost curve is rising.
   (D) If the average total cost curve is below the marginal cost curve, the marginal cost curve is falling.
   (E) If the average and marginal cost curves intersect, the marginal cost curve is at a minimum.

9. One characteristic of perfectly competitive markets is that individual firms

   (A) engage in product differentiation
   (B) are free to enter or exit an industry in the long run
   (C) earn positive economic profits in the long run
   (D) advertise to increase market share
   (E) face a downward-sloping demand curve

Unauthorized copying or reuse of any part of this page is illegal.

GO ON TO THE NEXT PAGE

10. At the current production level of good X, price is greater than marginal cost. Which of the following actions would lead to greater efficiency?

    (A) Decreasing the production of good X
    (B) Increasing the production of good X
    (C) Maintaining the current level of production of good X
    (D) Imposing a tax on the production of good X
    (E) Imposing an effective price floor on good X

11. Which of the following is true of a monopolistically competitive firm in long-run equilibrium?

    (A) Price is greater than marginal cost, and marginal revenue is equal to average total cost.
    (B) Price is greater than marginal revenue, and marginal cost is equal to average total cost.
    (C) Price is greater than marginal revenue, and marginal cost is greater than average total cost.
    (D) Marginal revenue is equal to marginal cost, and price is equal to average total cost.
    (E) Marginal revenue is greater than marginal cost, and price is equal to average total cost.

12. Generally, monopolies are considered inefficient because they

    (A) produce at a point where marginal cost is less than marginal revenue
    (B) produce at a point where marginal cost exceeds price
    (C) produce more output than does a competitive industry with similar cost conditions
    (D) lead to an overallocation of resources in the affected market
    (E) lead to an underallocation of resources in the affected market

13. A profit-maximizing firm that sells its output in a perfectly competitive market hires two additional workers, calculating that the contribution to total revenue of the last worker hired just equals the extra cost of hiring that worker. Six months later, the firm finds that the last worker's contribution to total revenue is less than the extra cost of hiring that worker. Which of the following may have occurred in the interim to explain this change?

    (A) The firm laid off some workers.
    (B) The market supply for the firm's product decreased.
    (C) The market demand for the firm's product decreased.
    (D) A technological advance increased the productivity of the firm's workforce.
    (E) The firm negotiated new contracts with workers, lowering wages.

14. Suppose that a large number of unskilled workers enter a nation's labor market. If the labor market is competitive, the number of unskilled workers hired and the wage rate will most likely change in which of the following ways?

	Number of Unskilled Workers Hired	Wage Rate
(A)	Increase	Increase
(B)	Increase	Decrease
(C)	Increase	Not change
(D)	Decrease	Increase
(E)	Decrease	Decrease

15. A society that wishes to achieve greater income equality is most likely to have which of the following?

    (A) A regressive income tax system and high estate and gift taxes
    (B) A regressive income tax system and low estate and gift taxes
    (C) A progressive income tax system and high estate and gift taxes
    (D) A progressive income tax system and low estate and gift taxes
    (E) A proportional income tax system and high estate and gift taxes

Unauthorized copying or reuse of any part of this page is illegal.

16. The study of economics is primarily concerned with which of the following?

(A) The testing of hypotheses under controlled conditions
(B) The allocation of scarce resources, given unlimited wants
(C) The fair and equal treatment of all households
(D) The provision of conclusive answers to public policy issues
(E) The development of the dynamics of group behavior

17. Mr. Carpenter devotes his working time to producing tables and chairs. An increase in the demand for chairs will result in

(A) an increase in the amount of time he devotes to producing tables
(B) an increase in his opportunity cost of producing tables
(C) a decrease in the price of lumber
(D) a decrease in the price of chairs
(E) a decrease in his total revenue

18. Assume that both the supply of and the demand for a good are relatively price elastic. The imposition of a per-unit excise tax on the sale of the good would cause the equilibrium price and quantity to change in which of the following ways?

	Price	Quantity
(A)	Increase	Increase
(B)	Increase	No change
(C)	Increase	Decrease
(D)	Decrease	No change
(E)	Decrease	Decrease

19. Assume that consumers consider potatoes to be an inferior good, but consider rice to be a normal good. An increase in consumers' incomes will most likely affect the equilibrium price and quantity of potatoes and rice in which of the following ways?

	Potatoes		Rice	
	Price	Quantity	Price	Quantity
(A)	Decrease	Decrease	Increase	Increase
(B)	Decrease	Increase	Increase	Decrease
(C)	Decrease	Decrease	Decrease	Decrease
(D)	Increase	Increase	Decrease	Decrease
(E)	Increase	Decrease	Increase	Decrease

20. Assume that a consumer spends all her income on the purchase of two goods. If the consumer's income doubles and the prices of the two goods also double, the quantity of the two goods purchased will

(A) also double
(B) more than double
(C) increase, but it will be less than double
(D) not change
(E) depend on the slope of the demand curve

21. Economies of scale exist when

(A) the doubling of all inputs doubles the output produced
(B) short-run average total cost decreases as output increases
(C) short-run average total cost remains constant as output increases
(D) long-run average total cost increases as output increases
(E) long-run average total cost decreases as output increases

22. Locotek produces toy trains and pays each worker $350 per week. Five workers can produce 40 trains per week and six workers can produce 45 trains per week. The marginal product per week of the sixth worker is

(A) $70
(B) $350
(C) 5 trains
(D) 7.5 trains
(E) 42.5 trains

23. If the only two firms in an industry successfully collude to maximize their joint profit, the price for the product will be

(A) equal to the marginal cost of production
(B) equal to the average total cost of production
(C) above the marginal cost of production
(D) above the monopoly price
(E) below the average variable cost of production

Unauthorized copying or reuse of any part of this page is illegal.

GO ON TO THE NEXT PAGE

24. If there are many firms in an industry and each firm's product is indistinguishable from the products of all other firms, the individual firm's demand curve will be

(A) upward sloping and different for each firm
(B) downward sloping and different for each firm
(C) downward sloping and identical for every firm
(D) horizontal and different for each firm
(E) horizontal and identical for every firm

25. A monopoly is different from a perfectly competitive firm in that a monopoly

(A) does not have a U-shaped average total cost curve
(B) has an average fixed cost curve that is perfectly horizontal
(C) has a marginal revenue curve that lies below its demand curve
(D) always earns economic profits
(E) operates in the inelastic segment of its demand curve

26. Price discrimination occurs when

(A) the supply of the product is elastic
(B) a product's average cost is greater than its average revenue
(C) a product's average cost is less than its average revenue
(D) differences in a product's price reflect differences in marginal costs
(E) differences in a product's price do not reflect differences in costs of production

27. If a 5 percent wage increase in a particular labor market results in a 10 percent decrease in employment, the demand for labor is

(A) perfectly elastic
(B) relatively elastic
(C) unit elastic
(D) relatively inelastic
(E) perfectly inelastic

Number of Workers	Hourly Wage	Marginal Factor Cost	Marginal Revenue Product
10	$5.00		
11	5.10	$6.10/hr	$8.70/hr
12	5.20	6.30/hr	7.60/hr
13	5.30	6.50/hr	6.50/hr
14	5.40	6.70/hr	5.40/hr
15	5.50	6.90/hr	4.30/hr

28. According to the information in the table above, the twelfth worker would increase the hourly profit by

(A) $0.20
(B) $1.10
(C) $1.30
(D) $2.40
(E) $5.20

29. Characteristics of a pure public good include which of the following?

I. Nonpaying consumers cannot be excluded from consuming the good.
II. Consumption by any one person does not reduce the availability of the good to others.
III. The amount consumed depends on the price paid.

(A) I only
(B) II only
(C) III only
(D) I and II only
(E) II and III only

Unauthorized copying or reuse of any part of this page is illegal.

30. Which of the following tends to increase the gap in earnings between skilled and unskilled workers over time?

(A) An increase in the demand for unskilled workers relative to skilled workers
(B) An increase in the supply of skilled workers relative to unskilled workers
(C) A decrease in the demand for unskilled workers relative to skilled workers
(D) A decrease in both the demand for and the supply of skilled workers
(E) An increase in both the demand for and supply of unskilled workers

31. For an economy with a straight-line production possibilities curve, which of the following must be true?

I. The opportunity cost of producing another unit is constant.
II. Resources are completely adaptable to alternative uses.
III. Resources are used efficiently.

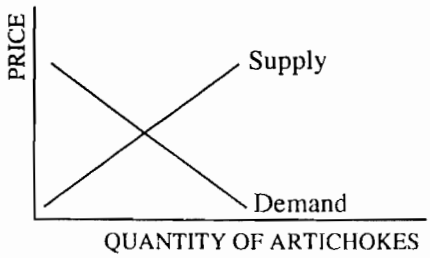
(A) I only
(B) II only
(C) III only
(D) I and II
(E) II and III

32. Consumer surplus is defined as

(A) opportunity cost minus total revenue
(B) total revenue minus opportunity cost
(C) the difference between the resource costs and the price that consumers pay
(D) the difference between the value that consumers place on a good and the price they pay
(E) the sum of external costs and benefits

33. Which of the following would cause the equilibrium price of good X to increase?

(A) Producers of good X find a new technology that reduces the cost of producing X.
(B) The price of an essential input in the production of good X increases.
(C) Goods X and Y are complements, and the government imposes a tax on good Y.
(D) Good X is a normal good, and the government increases income taxes by 3%.
(E) Good X is an inferior good, and the government decreases income taxes by 10%.



34. The graph above shows the supply and demand curves for artichokes. The surgeon general announces that eating an artichoke a day dramatically reduces one's likelihood of developing cancer. Simultaneously an infestation of the artichoke weevil severely damages the crop. Which of the following will definitely occur as a result?

(A) The supply of artichokes will increase.
(B) The price of artichokes will increase.
(C) The demand for artichokes will decrease.
(D) The quantity of artichokes grown will decrease.
(E) The profits of farmers who specialize in growing artichokes will decrease.

35. The price of an airline ticket is typically lower if a traveler buys the ticket several weeks before the flight's departure date rather than on the day of departure. This pricing strategy is based on the assumption that

(A) travelers are not aware of how airline prices change across time
(B) travelers do not have alternative modes of transportation
(C) travelers will pay any price to travel as the departure date approaches
(D) the marginal cost of the last few seats on an airplane is higher than that for the first few seats
(E) travelers' demand becomes less elastic as the departure date approaches

Unauthorized copying or reuse of any part of this page is illegal.

GO ON TO THE NEXT PAGE.

36. Technological advances will lead to

(A) an increase in marginal utility
(B) a decrease in average total costs
(C) a decrease in net exports
(D) an increase in marginal costs
(E) diseconomies of scale

37. Marginal cost is defined as the

(A) change in total cost resulting from producing an additional unit of output
(B) change in total cost resulting from using an additional unit of input
(C) difference between total cost and total variable cost
(D) difference between total variable cost and total fixed cost
(E) difference between average total cost and average variable cost divided by output

Questions 38-39 are based on the following matrix.

FIRM A'S PRICING STRATEGY	FIRM B'S PRICING STRATEGY: High	FIRM B'S PRICING STRATEGY: Low
High	\$100, \$100	\$50, \$150
Low	\$150, \$50	\$50, \$50

The payoff matrix above gives the profits associated with the strategic choices of two firms in an oligopolistic industry. The first entry in each cell is the profit to Firm A and the second to Firm B.

38. If the two firms collude, Firm A's and Firm B's profits would be which of the following?

	Firm A	Firm B
(A)	\$150	\$ 50
(B)	\$100	\$100
(C)	\$100	\$150
(D)	\$ 50	\$100
(E)	\$ 50	\$ 50

39. If each firm simultaneously chooses its pricing strategy without collusion, Firm A's and Firm B's profits would be which of the following?

	Firm A's Profit	Firm B's Profit
(A)	\$150	\$ 50
(B)	\$100	\$100
(C)	\$100	\$150
(D)	\$ 50	\$100
(E)	\$ 50	\$ 50

Unauthorized copying or reuse of any part of this page is illegal.

40. In the short run, a perfectly competitive firm should shut down whenever

(A) minimum average variable cost exceeds price
(B) minimum average total cost exceeds price
(C) marginal revenue exceeds marginal cost
(D) marginal cost exceeds marginal revenue
(E) it is losing money

41. A constant-cost, perfectly competitive industry is in long-run equilibrium. If the demand for the good increases, which of the following will occur in the long run?

(A) The price will remain unchanged.
(B) The price will increase.
(C) The price will decrease.
(D) Economic profits will increase.
(E) Economic profits will decrease.

42. Assume a firm uses only two inputs, capital (K) and labor (L), to produce its output. Let the marginal product of capital be MP_K, the marginal product of labor be MP_L, the price of capital be P_K, and the price of labor be P_L. The least-cost combination of capital and labor needed to produce a given level of output is given by which of the following?

(A) $MP_L / P_L = MP_K / P_K$
(B) $MP_L / P_L > MP_K / P_K$
(C) $MP_L / P_K = MP_K / P_L$
(D) $(MP_L)P_L = (MP_K)P_K$
(E) $MP_L = MP_K$

43. A firm's demand curve for labor is equal to a segment of its

(A) average variable cost curve
(B) total revenue curve
(C) marginal cost curve
(D) marginal revenue product curve
(E) average product curve

44. A Lorenz curve can be used by economists to do which of the following?

(A) Show the distribution of personal income
(B) Show the amount of wealth in a nation
(C) Show the amount of consumption in a nation
(D) Explain why different households have different incomes
(E) Explain why income is equally distributed in socialist countries

45. The surgeon general has determined that smoking causes cancer and heart disease for both smokers and passive smokers, nonsmokers who breathe smoke-filled air. If cigarette prices are determined in a free market, which of the following will be true?

(A) The price of cigarettes will be too low and the quantity sold will be too high.
(B) The price of cigarettes will be efficient but the quantity sold will be too high.
(C) The market will be efficient because markets always equate marginal benefits and marginal costs.
(D) The price of cigarettes will reflect the marginal social benefit received by nonsmokers.
(E) The price of cigarettes will overstate the true social cost imposed on nonsmokers.

46. An opportunity cost is entailed in which of the following situations?

I. A student decides to attend college full-time.
II. A family uses its $20,000 savings to purchase an automobile.
III. A farmer decides to grow more wheat and less corn.

(A) I only
(B) II only
(C) III only
(D) I and III only
(E) I, II, and III

Unauthorized copying or reuse of any part of this page is illegal.

GO ON TO THE NEXT PAGE.

47. If the demand for good Y increases as the price of good X decreases, it can be concluded that

(A) X and Y are substitute goods
(B) X and Y are complementary goods
(C) X is an inferior good and Y is a superior good
(D) X is a superior good and Y is an inferior good
(E) both X and Y are inferior goods

48. If the market demand for a good is inelastic and the supply is elastic, which of the following is true when there is an increase in sales tax?

(A) Consumers will bear most of the burden of the tax.
(B) Producers will bear all of the burden of the tax.
(C) Producers will bear most of the burden of the tax or risk losing sales.
(D) Both consumers and producers will share the burden of the tax equally.
(E) The price of the good will not change.

49. If a perfectly competitive firm increases its price above the market equilibrium price, which of the following will be true for this firm?

(A) Its total revenue will increase.
(B) Its profit will increase.
(C) Its sales will decrease but profit will not be affected.
(D) Its demand curve will become downward sloping.
(E) It will not be able to sell any output.

50. Leather and beef are jointly produced such that an increase in the production of one results in an equal increase in the production of the other. An increase in the demand for leather will most likely cause

(A) a decrease in the price of leather
(B) a decrease in the price of beef
(C) a decrease in the equilibrium quantity of beef sold
(D) an increase in the demand for beef in the short run
(E) an increase in the supply of leather

51. Which of the following best explains why the short-run average total cost curve is U-shaped?

(A) Spreading total fixed costs over a larger output, and constant returns
(B) Spreading total fixed costs over a larger output, and eventually diminishing returns
(C) Increasing total fixed costs and increasing returns
(D) Increasing average variable costs and decreasing returns
(E) Decreasing average variable costs and increasing returns

52. Assume that a firm is maximizing short-run profits and that price is greater than average variable cost. Which of the following must be true at the firm's level of output?

(A) Marginal revenue is equal to average total cost.
(B) Marginal revenue is greater than total variable cost.
(C) Marginal revenue is equal to price, which is greater than average total cost.
(D) Marginal revenue is equal to marginal cost.
(E) Price is equal to average total cost.

53. A single-price monopolist's marginal revenue is

(A) equal to its price
(B) less than its price
(C) greater than its price
(D) negative when it maximizes revenues
(E) zero when it maximizes profit

54. When marginal product exceeds average product, which of the following must be true?

(A) Average product is increasing.
(B) Average product is decreasing.
(C) Marginal product is increasing.
(D) Total product is decreasing.
(E) Total product is at its maximum.

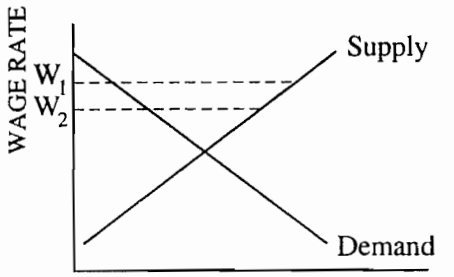
Unauthorized copying or reuse of any part of this page is illegal.

55. Which of the following is true if a monopolist's marginal revenue is negative at the current level of output?

(A) Demand for its product is unit elastic.
(B) Demand for its product is price elastic.
(C) Demand for its product is price inelastic.
(D) Marginal cost is equal to price.
(E) Marginal revenue is equal to price.

56. A merger of two firms may increase economic efficiency by

(A) decreasing average total cost through an increase in economies of scale
(B) decreasing output to reduce marginal cost and equalize price
(C) increasing economic profits but decreasing consumer surplus
(D) increasing consumer surplus by decreasing economic profits
(E) increasing consumer surplus by shifting the demand curve for the product to the right



57. The graph above illustrates the labor market for teenage workers. The current minimum wage for all workers is W_1. If Congress introduces a sub-minimum wage, W_2 that applies only to teenagers, what is the most likely effect on teenage employment?

(A) Teenage employment will increase because firms will want to hire more teenagers at W_2 than at W_1.
(B) Teenage employment will increase because more teenagers will want to work at W_2 than at W_1.
(C) Teenage employment will decrease because fewer teenagers will want to work at W_2 than at W_1.
(D) Teenage employment will decrease because firms will want to hire fewer teenagers at W_2 than at W_1.
(E) Teenage employment will stay the same because the market-clearing wage is lower than W_1 and W_2.

Unauthorized copying or reuse of any part of this page is illegal.

GO ON TO THE NEXT PAGE

58. Marginal revenue product is defined as the

(A) change in income that occurs when an individual works additional hours
(B) change in total revenue that occurs when one additional unit of the good is produced
(C) change in total revenue that occurs when one additional unit of an input is employed
(D) total revenue divided by the quantity of labor employed
(E) change in total cost that occurs when one additional unit of an input is employed

59. An increase in the marginal social benefit of consuming a public good should result in

(A) a decrease in public production of the good
(B) an increase in the optimal quantity of the good
(C) a decrease in the optimal quantity of the good
(D) a decrease in the social costs associated with producing the good
(E) a decrease in the social costs associated with consuming the good

60. An industry will produce more than the socially efficient level of output under which of the following conditions?

(A) The production or consumption of a good generates a positive externality.
(B) The production or consumption of a good generates a negative externality.
(C) The industry is a monopoly.
(D) The industry produces a public good.
(E) The industry produces a private good.

END OF SECTION I

Unauthorized copying or reuse of any part of this page is illegal.

Section II

MICROECONOMICS

Section II

Planning time—10 minutes

Writing time—50 minutes

Directions: You have fifty minutes to answer all three of the following questions. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

1. Bestmilk, a typical profit-maximizing dairy firm, is operating in a constant-cost, perfectly competitive industry that is in long-run equilibrium.

   (a) Draw correctly labeled side-by-side graphs for the dairy market and for Bestmilk and show each of the following.

      (i) Price and output for the industry

      (ii) Price and output for Bestmilk

   (b) Assume that milk is a normal good and that consumer income falls. Assume that Bestmilk continues to produce. On your graphs in part (a), show the effect of the decrease in income on each of the following in the short run.

      (i) Price and output for the industry

      (ii) Price and output for Bestmilk

      (iii) Area of loss or profit for Bestmilk

   (c) Following the decrease in consumer income, what must be true for Bestmilk to continue to produce in the short run?

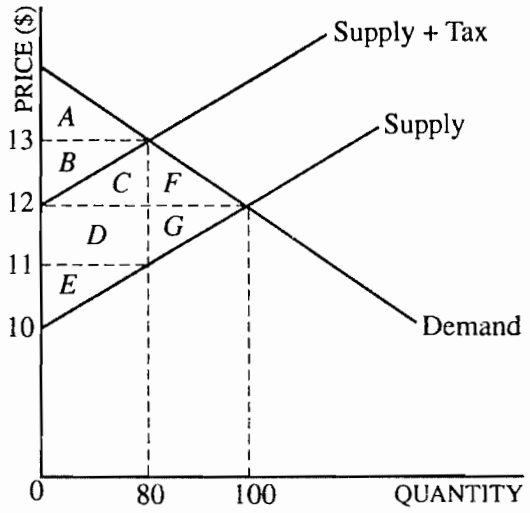
   (d) Assume that the industry adjusts to a new long-run equilibrium. Compare the following between the initial and the new long-run equilibrium.

      (i) Price in the industry

      (ii) Output of a typical firm

      (iii) The number of firms in the dairy industry

GO ON TO THE NEXT PAGE



2. The graph above shows the market for a good that is subject to a per-unit tax. The letters in the graph represent the enclosed areas.

   (a) Using the labeling on the graph, identify each of the following.

      (i) The equilibrium price and quantity before the tax

      (ii) The area representing the consumer surplus before the tax

      (iii) The area representing the producer surplus before the tax

   (b) Assume that the tax is now imposed. Based on the graph, does the price paid by the buyers rise by the full amount of the tax? Explain.

   (c) Using the labeling on the graph, identify each of the following after the imposition of the tax.

      (i) The net price received by the sellers

      (ii) The amount of tax revenue

      (iii) The area representing the consumer surplus

      (iv) The area representing the deadweight loss

Section II

3. P & L is a profit-maximizing shirt-manufacturing firm. The firm can sell all the shirts it can produce to retailers at a price of $20 each. P & L can hire all of the workers it wants at a market wage of $120 per day per worker. The table below shows the firm's short-run production function.

Number of Workers	Number of Shirts per Day
0	0
1	10
2	25
3	45
4	60
5	72
6	80
7	85
8	82

(a) In what kind of market structure does this firm sell its output? How can you tell?

(b) In what kind of market structure does this firm hire its workers? How can you tell?

(c) Calculate the marginal revenue product of the third worker. Show your work.

(d) How many workers should the firm hire to maximize profit? Explain.

END OF EXAM

Chapter III: Answers to the 2005 AP Microeconomics Exam

- Section I: Multiple Choice
  - Section I Answer Key and Percent Answering Correctly
  - Analyzing Your Students' Performance on the Multiple-Choice Section
  - Diagnostic Guide for the 2005 AP Microeconomics Exam
- Section II: Free Response
  - Comments from the Chief Reader
  - Scoring Guidelines, Sample Student Responses, and Commentary
    - Question 1
    - Question 2
    - Question 3

Section I: Multiple Choice

Listed below are the correct answers to the multiple-choice questions, the percent of AP students who answered each question correctly by AP grade, and the total percent answering correctly.

Section I Answer Key and Percent Answering Correctly

Item No.	Correct Answer	Percent Correct by Grade 5	4	3	2	1	Total Percent Correct
1	A	94	83	74	65	46	70
2	A	99	98	96	92	69	89
3	A	97	93	86	77	49	78
4	C	99	96	88	76	48	79
5	B	98	95	91	83	64	85
6	A	96	91	84	71	41	74
7	C	97	92	84	73	54	78
8	A	96	77	50	28	14	49
9	B	99	94	82	65	46	75
10	B	91	77	61	47	31	58
11	D	83	64	48	39	27	49
12	E	94	77	57	40	21	54
13	C	92	80	72	68	53	71
14	B	93	83	76	71	59	75
15	C	90	73	58	43	26	55
16	B	99	98	96	93	81	92
17	B	93	89	85	81	64	81
18	C	88	77	66	57	41	63
19	A	99	95	86	73	47	78
20	D	83	79	78	80	72	78
21	E	76	55	41	27	15	39
22	C	99	96	91	85	67	86
23	C	94	81	68	58	44	67
24	E	98	88	68	47	27	62
25	C	94	83	64	42	22	58

Item No.	Correct Answer	Percent Correct by Grade 5	4	3	2	1	Total Percent Correct
26	E	79	67	53	42	26	51
27	B	95	85	71	60	40	67
28	C	78	56	45	37	27	45
29	D	94	89	81	73	51	75
30	C	95	84	75	66	46	71
31	D	79	59	43	35	25	45
32	D	99	93	84	70	45	76
33	B	98	90	80	68	43	73
34	B	99	96	92	88	68	87
35	E	92	84	75	66	40	69
36	B	97	90	85	77	53	78
37	A	96	91	87	78	48	78
38	B	99	93	84	73	48	77
39	E	92	78	61	45	22	56
40	A	97	89	71	44	17	60
41	A	49	33	28	21	13	27
42	A	90	75	58	43	23	55
43	D	81	58	42	32	21	43
44	A	68	52	38	30	18	38
45	A	83	46	23	13	13	31
46	E	90	83	77	71	52	73
47	B	91	79	67	56	37	63
48	A	94	86	77	68	42	71
49	E	97	88	75	57	23	64
50	B	79	56	44	37	25	45

continued on the next page

Section I Answer Key and Percent Answering Correctly *(continued)*

Item No.	Correct Answer	Percent Correct by Grade 5	4	3	2	1	Total Percent Correct
51	B	75	57	45	35	25	44
52	D	92	74	52	35	19	51
53	B	92	78	54	31	16	51
54	A	84	55	32	17	11	36
55	C	59	39	27	20	24	31

Item No.	Correct Answer	Percent Correct by Grade 5	4	3	2	1	Total Percent Correct
56	A	85	65	51	41	29	51
57	A	88	71	57	48	35	57
58	C	83	57	34	22	16	39
59	B	87	60	42	34	27	46
60	B	84	47	21	9	8	29

Analyzing Your Students' Performance on the Multiple-Choice Section

If you give your students the 2005 AP Microeconomics Exam for practice, you may want to analyze the results to find overall strengths and weaknesses in their understanding of AP Microeconomics. The following diagnostic worksheet will help you do this. You are permitted to photocopy and distribute it to your students for completion.

1. In each section, students should insert a check mark for each correct answer.
2. Add together the total number of correct answers for each section.
3. To compare the student's number of correct answers for each section with the average number correct for that section, copy the number of correct answers to the "Number Correct" table at the end of the Diagnostic Guide.

In addition, under each item, the percent of AP students who answered correctly is shown, so students can analyze their performance on individual items. This information will be helpful in deciding how students should plan their study time.

Diagnostic Guide for the 2005 AP Microeconomics Exam

Basic Concepts (Average number correct = 4.5)

Question #	1	2	16	17	31	46
Correct/Incorrect						
Percent of Students Answering Correctly	*70*	*89*	*92*	*81*	*45*	*73*

Product Market (Average number correct = 25.0)

Question #	3	4	5	6	7	8	9	10	11	12	18	19	20	21	22	23	24	25	26	32
Correct/Incorrect																				
Percent of Students Answering Correctly	*78*	*79*	*85*	*74*	*78*	*49*	*75*	*58*	*49*	*54*	*63*	*78*	*78*	*39*	*86*	*67*	*62*	*58*	*51*	*76*

Question #	33	34	35	36	37	38	39	40	41	42	47	48	49	50	51	52	53	54	55	56
Correct/Incorrect																				
Percent of Students Answering Correctly	*73*	*87*	*69*	*78*	*78*	*77*	*56*	*60*	*27*	*55*	*63*	*71*	*64*	*45*	*44*	*51*	*51*	*36*	*31*	*51*

Supply and Demand (Average number correct = 7.9)

Question #	3	4	5	18	32	33	34	35	47	48	50
Correct/Incorrect											
Percent of Students Answering Correctly	*78*	*79*	*85*	*63*	*76*	*73*	*87*	*69*	*63*	*71*	*45*

Consumer Theory (Average number correct = 2.3)

Question #	7	19	20
Correct/Incorrect			
Percent of Students Answering Correctly	*78*	*78*	*78*

Production and Cost (Average number correct = 5.4)

Question #	6	8	21	22	36	37	42	51	54
Correct/Incorrect									
Percent of Students Answering Correctly	*74*	*49*	*39*	*86*	*78*	*78*	*55*	*44*	*36*

Diagnostic Guide for the 2005 AP Microeconomics Exam *(continued)*

Pricing and Output Decision (Average number correct = 9.4)

Question #	9	10	11	12	23	24	25	26	38	39	40	41	49	52	53	55	56
Correct/Incorrect																	
Percent of Students Answering Correctly	*75*	*58*	*49*	*54*	*67*	*62*	*58*	*51*	*77*	*56*	*60*	*27*	*64*	*51*	*51*	*31*	*51*

Factor Markets (Average number correct = 4.0)

Question #	13	14	27	28	43	57	58
Correct/Incorrect							
Percent of Students Answering Correctly	*71*	*75*	*67*	*45*	*43*	*57*	*39*

Market Failure (Average number correct = 3.5)

Question #	15	29	30	44	45	59	60
Correct/Incorrect							
Percent of Students Answering Correctly	*55*	*75*	*71*	*38*	*31*	*46*	*29*

Number Correct

	Basic Concepts	Product Market	Supply and Demand	Consumer Theory	Production and Cost	Pricing and Output Decision	Factor Markets	Market Failure
Number of Questions	6	40	11	3	9	17	7	7
Average Number Correct	4.5 (75.0%)	25.0 (62.5%)	7.9 (71.8%)	2.3 (76.7%)	5.4 (60.0%)	9.4 (55.3%)	4.0 (57.1%)	3.5 (50.0%
My Number Correct								

Section II: Free Response

Comments from the Chief Reader

Arthur Raymond
Professor of Economics
Muhlenberg College
Allentown, Pennsylvania

The free-response questions on the 2005 AP Microeconomics Exam attempt to duplicate the form and content, skills, and content knowledge required in a university-level introductory course in microeconomics. These free-response questions give students the opportunity to demonstrate their knowledge and understanding of microeconomics principles, methodology, and analyses.

Scoring Guidelines, Sample Student Responses, and Commentary

The answers on the following pages are actual student responses to the free-response questions on the 2005 AP Microeconomics Exam. The students gave permission to have their work reproduced at the time they took the exam. These responses were read and scored by the Chief Reader, Question Leaders, and Table Leaders, and appeared in the sample responses used for the training of Readers during the AP Reading in June 2005. Each question is represented by three responses that illustrate three distinct score points.

A copy of the scoring guidelines for each question precedes the sample responses. Following each response is commentary that attempts to show how each response meets the criteria of the assigned score. Although the commentary discusses key components of each score point analytically, in fact the responses are read and scored holistically. Thus, as in the actual reading process, the assigned score does not represent either the addition or subtraction of points but a global evaluation by an experienced Reader.

Question 1—Overview

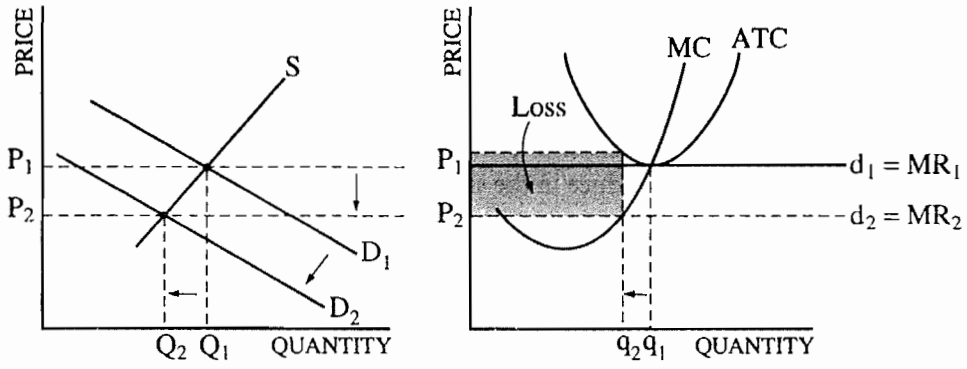
This question tested students' understanding of the relationship between the firm and the market in a perfectly competitive industry. Part (a) asked the students to draw side-by-side graphs for the market and a typical firm in long-run equilibrium. Part (b) required students to determine the effect of a change in market demand on the industry and the firm in the short run. In part (c) students were asked to state the condition necessary for firms to produce in the short run. Finally, students were asked to compare industry price, firm output, and the number of firms in the industry from the initial long-run equilibrium to the new long-run equilibrium produced by the change in market demand from part (b).

The mean score was 6.11 out of a possible 12 points, which is almost 51 percent of the maximum. Student scores were distributed over the entire range of points. This was a good question on perfect competition, requiring students to graphically demonstrate their understanding of short-run and long-run equilibria for the firm and the market, and to explain the nature of adjustments from one long-run equilibrium to another.

A common error was confusion about the relationship between the firm and the market in a competitive industry, and what conditions are met in the long run. Equally confusing to students was how a change in market demand affects the price of a competitive firm. The most common errors were not recognizing that in a constant-cost industry the long-run equilibrium price is constant and that the output of a typical firm is unchanged from one long-run equilibrium to another.

Scoring Guidelines for Question 1

12 points (4+4+1+3)



(a) 4 points:

- One point is earned for a correctly labeled market graph of the dairy industry.
- One point is earned for correctly labeled equilibrium industry price and quantity.
- One point is earned for drawing a horizontal demand curve for Bestmilk at the market price.
- One point is earned for showing the equilibrium quantity for Bestmilk where price equals marginal cost and the minimum of average total cost (P = MC = ATC).

(b) 4 points:

- One point is earned for showing a decrease in market demand.
- One point is earned for showing a decrease in equilibrium market price and quantity.
- One point is earned for showing the change to a new lower profit-maximizing price and quantity for Bestmilk.
- One point is earned for shading the area of loss for Bestmilk.

(c) 1 point:

- One point is earned for stating that $P \geq AVC$, or $TR \geq TVC$, or $P > AVC$, or $TR > TVC$, or losses are less than total fixed cost.

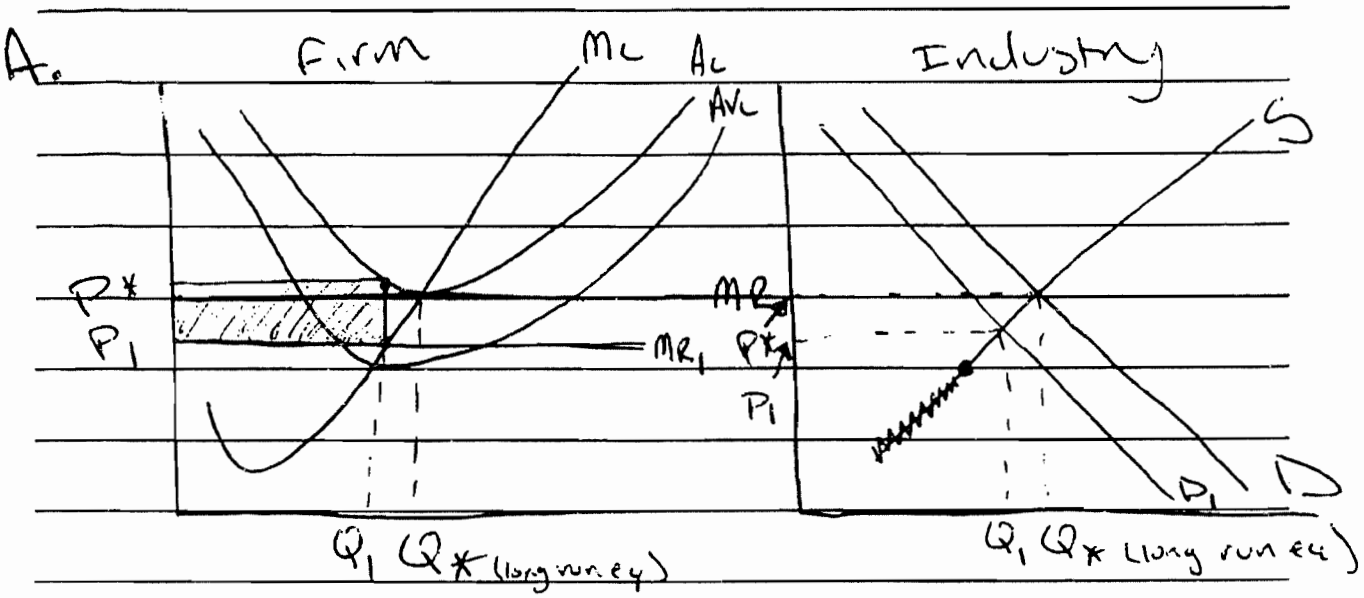
(d) 3 points:

- One point is earned for stating that industry price returns to the original long-run equilibrium price.
- One point is earned for stating that the output of a typical firm returns to the original profit-maximizing quantity.
- One point is earned for stating that there is a decrease in the number of firms.

Sample Student Responses for Question 1

Student Response 1 (Score: 12)

A.



B. P_1 = New price for industry and firm

Q_1 = new quantity for industry and firm

iii Shaded area = loss for Best Milk P/C below breakeven point ($AC = MC$)

C. The decrease in income must not be so great that it pushes the industry demand curve left until it is passed the shutdown point. If MR (which is determined by supply + demand equilibrium on the industry graph) falls below the shutdown point of $MC = AVC$ then the firm will not be able to produce anymore because they cannot cover their AVC.

→ $MR > (MC = AVC)$

D. i Price in industry will go back to P* on industry graph (original long run equilibrium price)

ii Typical Firm output goes back to q* on firm graph (original LRE quantity)

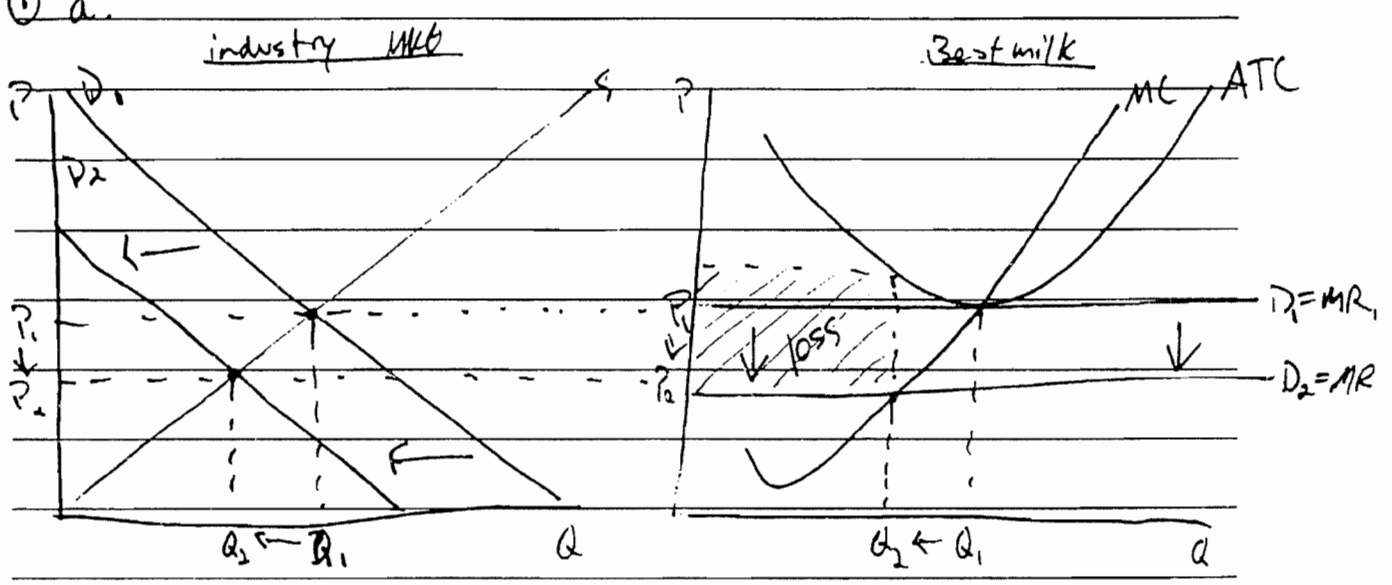
iii # Firms will be less now than before b/c they will have left when the prices started to fall. This shifts the supply curve left and pushes the price back to it's original equilibrium level.

Commentary

This is an excellent response. The student answered all parts of the question correctly and received full credit.

Student Response 2 (Score: 9)

① a.



c. Bestmilk's average ~~total~~ cost must fall, or they must recieve some sort of subsidy such that ATC is less than or equal to P_2 at Quantity Q_2.

d. i. Price is lower in the new equalibrium than ~~is~~ before consumer income fell

ii. Output on a typical farm will decrease after a fall in Consumer income.

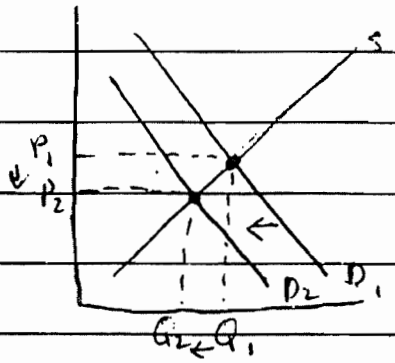
iii. Firms who cannot produce efficiently enough after the fall in Price + Output will be forced to leave the industry. Therefore the number of firms in the dairy industry falls.

Commentary

The student lost the point in part (c) for not providing a correct explanation for why Bestmilk continues to operate despite losses. The student also lost 2 points in part (d) for not correctly identifying the price and output in the new long-run equilibrium.

Student Response 3 (Score: 6)

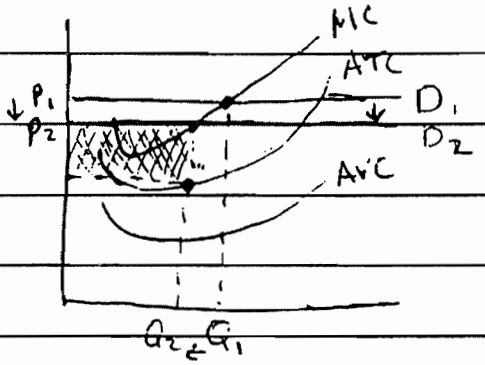
(a) (i) industry



price at P_1,

output at Q_1

(ii) Bestmilk



price at P_1,

output at Q_1

(b) As income decreases, the demand for a normal good also decreases.

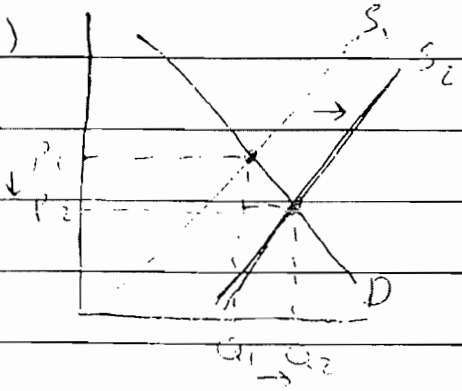
(i) As demand decreases price and output both also decrease

(ii) As demand decreases, price and output also both decrease

(iii) The area of profit for Bestmilk is the shaded region in the graph of part (a)(ii).

(c) Bestmilk will continue to produce as long as marginal revenue (or demand) exceeds average variable costs.

(d)



(i) price decreases from P_1 to P_2

(ii) output increases

(iii) the change in the number of firms cannot be determined ~~on the graph~~

Commentary

The student lost 2 points in part (a) for not showing that the firm's price comes directly from the market and that long-run equilibrium occurs where P=MC=Minimum ATC. One point was also lost in part (b) for not shading the correct area representing the loss for the firm. All 3 points were lost in part (d).

Question 2—Overview

This question tested students' ability to determine the effects of a tax on price, consumer surplus, producer surplus, tax revenues, and deadweight loss. Part (a) asked students to identify price, quantity, consumer surplus, and producer surplus before a tax. Students were asked in part (b) to explain why the burden of the tax was shared between producers and consumers. In part (c) students were required to identify the post-tax consumer surplus, deadweight loss, tax revenues, and net price received by sellers.

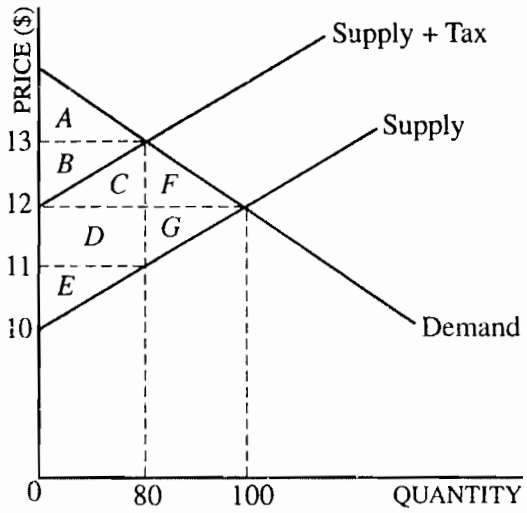
Students performed well on this question, averaging 4.75 out of a possible 9 points, which is almost 53 percent of the maximum. The points were distributed over the entire range of possible points.

The most common errors were in identifying the net price received by sellers after the imposition of a per-unit tax and the total tax revenues. Another common error was the inability to explain why the per-unit tax was shared between producers and consumers.

It is necessary to teach students the concepts of consumer surplus, producer surplus, and deadweight loss; how to identify these concepts graphically; and how consumer surplus and producer surplus change when the price changes. It is very important to teach how the price elasticities of supply and demand affect the distribution of the burden of a per-unit tax between producers and consumers.

Scoring Guidelines for Question 2

9 points (3 + 2 + 4)



(a) 3 points:

- One point is earned for identifying P = $12 and Q = 100 units.
- One point is earned for identifying the consumer surplus before the tax, A + B + C + F.
- One point is earned for identifying the producer surplus before the tax, D + E + G or $100.

(b) 2 points:

- One point is earned for stating that the price paid by the buyers does not rise by the full amount of the tax.
- One point is earned for a correct explanation: P increases by $1 and the tax is $2 per unit; or a correct elasticity explanation, such as S is not perfectly elastic, or D is not perfectly inelastic.

(c) 4 points:

- One point is earned for identifying the net price received by the sellers, $11.
- One point is earned for identifying the tax revenue, B + C + D or $160.
- One point is earned for identifying consumer surplus, A.
- One point is earned for identifying the deadweight loss, F + G or $20.

Sample Student Responses for Question 2

Student Response 1 (Score: 9)

a) Before the tax:

i.) Equilibrium price, where Supply and Demand curves cross, is at $12 per-unit.

Equilibrium quantity, where supply and demand curves cross, is at 100 units.

ii.) Consumer surplus is the areas in triangles A, B, C, and F.

iii) Producer surplus is the areas in Rectangle D, Triangle ~~G~~ and triangle E.

b) No, since the demand curve is downward sloping and the supply curve is upward sloping, the price paid for the tax increase is not paid by the buyers in full but by both the buyer and the producer. Demand must be perfectly inelastic for the buyers to pay the full price, and in this graph, demand is not parallel to the y axis and thus not perfectly inelastic.

c) After the tax:

i) Net price received by the sellers is only $11 per unit, and total revenue for sellers is 80(11) or $880.

ii) tax revenue collected are areas B, C, and D which amount to $2(80) or $160.

iii) Consumer surplus is now area A.

iv) Deadweight loss is the areas in triangles F and G.

Commentary

This is an excellent response. The student answers all parts of the question correctly and received full credit.

Student Response 2 (Score: 7)

(a) (i) equilibrium price before tax: $12
equilibrium quantity before tax: 100
(ii) consumer suplus before tax: ABCF
(iii) ~~tax~~ producer Surplus before tax: DEG

(b) The price paid by buyers does not rise by the full amount of the tax. The new price is $13, and the initial was $12, so price rose by $1. The Tax was $2. Price rose by half of the tax.

(C) (i) Net price recieved by sellers: $11
(ii) amt of tax revenue: 80 × 13 = $1,040
(iii) Consumer surplus: AB
(iv) deadweight loss: FG

Commentary

The student lost 2 points in part (c) for not identifying or calculating the correct amount of tax revenue and for not identifying the correct area representing the new consumer surplus.

Student Response 3 (Score: 4)

a) i. Equilibrium price is $2 and equilibrium quantity is 100.

ii. Consumer surplus before the tax is represented by the letter G.

iii. Producer surplus before the tax is represented by the letter F.

b) The price paid by the buyers does not raise by the full amount of tax because it will only raise by 1 dollar instead of 2 if you produce at equilibrium price and quantity.

c) i. the net price received by sellers for 80 units of a good is $1,040

ii The amount of tax revenue for 80 units of a good is $160 because without the tax net price was $880 so 1040 -880 is 160.

iii. Consumer surplus after the tax is represented by the letter B.

iv. Deadweight loss is shown by the letters C, D, and E.

Commentary

The student lost 2 points in part (a) for not correctly identifying the areas representing consumer and producer surpluses. The first point in part (c) was lost for not correctly identifying or calculating the net price received by sellers. The student lost the last 2 points in part (c) for incorrectly identifying the areas representing consumer surplus after the tax and the deadweight loss.

Question 3—Overview

This question tested students' understanding of market structure in the product and labor markets and the firm's profit-maximizing use of labor.

The mean score was 3.94 out of 8 possible points, or approximately 49 percent of the maximum. A significant number of students did earn all 8 points.

Students were often unable to recognize that when a firm faces a constant price for different levels of its output, it operates in a perfectly competitive output market. Similarly, students were often unable to recognize that when a firm faces a constant wage for different levels of labor usage, it operates in a perfectly competitive labor market. The two most common errors were the inability to find the profit-maximizing level of labor usage and to explain the condition that applies at the profit-maximizing level of labor usage.

It is important to teach the conditions associated with each market structure in output markets and in labor markets, and to establish that in perfectly competitive markets, one firm can sell as much output as it desires at the market price. Similarly, in perfectly competitive markets one firm can hire as much labor as it desires at the market wage. Also important is the idea that labor usage should be increased as long as marginal revenue product exceeds the wage rate. An additional laborer should not be hired if the marginal revenue product is less than the wage rate.

Scoring Guidelines for Question 3

8 points (2 + 2 + 2 + 2)

(a) 2 points:

- One point is earned for indicating perfect competition.
- One point is earned for a correct explanation: The price is constant, or the firm is a price taker in the product market.

(b) 2 points:

- One point is earned for indicating perfect competition.
- One point is earned for a correct explanation: The wage rate is constant, or the firm is a price taker in the labor market.

(c) 2 points:

- One point is earned for stating that MRP is \$400.
- One point is earned for showing the calculation: $MRP = P \times MP$, so $MRP = 20 \times \$20 = \$400$

(d) 2 points:

- One point is earned for indicating six workers, or in between six and seven workers.
- One point is earned for a correct explanation: $MRP > W$ for the sixth worker, but $MRP < W$ for the seventh worker.

Sample Student Responses for Question 3

Student Response 1 (Score: 8)

(a.) This firm sells its output in a perfectly competitive product market because it can sell every shirt at a price of 20 dollars indicating that it is a price taker.

(b.) This firms hires its inputs in a perfectly competitive factor market because since it can hire all workers at at price of 120 dollars per day this indicates that its workers are wage takers.

(c.) One can find the MRP of a worker by multiplying that workers MPP * Product or by finding the change in total revenue with the addition of that worker.

# of Workers	Number of Shirts per day	MPP	*	Product	=	MRP
1	10	10	*	20$	=	$200
2	25	15	*	20$	=	$300
3	45	20	*	20$	=	$400

Therefore the MRP of the third worker is $400

(d.) This firm should hire 6 workers because this is where MRP is most closely equal to the MRC and a firm will maximize profits at MRP = MRC. The firm would not hire an additional worker because then MRP < MRC and the firm would receive a loss.

Commentary

This is an excellent response. The student answered all parts of the question correctly and received full credit.

Student Response 2 (Score: 6)

3 a) This firm sells its output in a perfectly competitive market because it can sell all it wants at $20. Price has already been predetermined.

b) This firm hires its output in a perfectly competitive market because it can hire all it wants at $120 per day per worker. Wage has already been predetermined.

c) $MRP_L = MPP_L \times P_x$

↓ marginal revenue product of labor

↓ marginal physical product of labor

↓ Price of product X.

MPP of third worker equals 20 because 45-25=20

Price is given as $20 per shirt.

$20 x 20 = $400

MRP of the third worker is $400.

d) The firm should hire 4 workers because he yields the greatest marginal physical product at 25 shirts. The 4TH worker will yield a MRP of $500.

Commentary

The student lost the 2 points in part (d) for providing the incorrect number of workers and explanation.

Student Response 3 (Score: 4)

a) the firm sells its output in a perfectly competitive market. We can see this by looking at how the output increases. And how they can sell as much product as they make at a constant price.

b) In a ~~monopolistically~~ perfectly competitive market. this is shown by the constant wage of $120 per day

c) 45-25 = 20 the marginal revenue product of the third worker is 20 shirts per day

d) the firm should hire 7 workers. Up to the point of 7 workers the firms total output is increasing, after this point the firm begins to experience negative returns

Commentary

The student received the 2 points in part (a) and the 2 points in (b) for the correct identifications and explanations. The student failed to provide correct answers to parts (c) and (d) and lost all 4 points.

Chapter IV: Statistical Information

- Table 4.1—Section II Scores
- Table 4.2—Scoring Worksheet
- Table 4.3—Grade Distributions
- Table 4.4—Section I Scores and AP Grades
- How AP Grades Are Determined
- College Comparability Studies
- Reminders for All Grade Report Recipients
- Reporting AP Grades
- Purpose of AP Grades

This chapter presents statistical information about overall student performance on the 2005 AP Microeconomics Exam.

Table 4.1 shows and summarizes score distributions for each of the free-response questions. The scoring worksheet presented in Table 4.2 provides step-by-step instructions for calculating AP section and composite scores and converting composite scores to AP grades. Table 4.3 includes distributions for the overall exam grades. The grade distributions conditioned on multiple-choice performance presented in Table 4.4 are useful in estimating a student's AP grade given only the student's multiple-choice score.

College comparability studies, which are conducted to collect information for setting AP grade cut points, are briefly discussed in this chapter. In addition, the purpose and intended use of AP Exams are reiterated to promote appropriate interpretation and use of the AP Exam and exam results.

Table 4.1—Section II Scores

The following table shows the score distributions for AP students on each free-response question from the 2005 AP Microeconomics Exam.

Score	Question 1		Question 2		Question 3	
	No. of Students	% at Score	No. of Students	% at Score	No. of Students	% at Score
12	1,131	3.69				
11	1,271	4.14				
10	2,505	8.16				
9	3,624	11.81	2,081	6.78		
8	3,717	12.11	2,931	9.55	5,154	16.80
7	3,269	10.65	3,562	11.61	1,642	5.35
6	3,012	9.82	4,342	14.15	4,122	13.43
5	2,534	8.26	4,516	14.72	1,895	6.18
4	1,952	6.36	3,479	11.34	4,356	14.20
3	1,938	6.32	2,502	8.15	2,113	6.89
2	1,794	5.85	2,939	9.58	3,975	12.95
1	1,647	5.37	2,664	8.68	2,329	7.59
0	1,324	4.31	822	2.68	3,891	12.68
No Response	966	3.15	846	2.76	1,207	3.93
Total Students	30,684		30,684		30,684	
Mean	6.11		4.75		3.94	
Standard Deviation	3.34		2.56		2.77	
Mean as % of Maximum Score	51		53		49	

Table 4.2—Scoring Worksheet

Section I: Multiple Choice

[_____ − (1/4 × _____)] × 1.000 = _____

Number Correct (out of 60) | Number Wrong | Weighted Section I Score (If less than zero, enter zero; do not round)

Section II: Free Response

Question 1 _____ × 1.2500 = _____
(out of 12) (Do not round)

Question 2 _____ × 0.8333 = _____
(out of 9) (Do not round)

Question 3 _____ × 0.9375 = _____
(out of 8) (Do not round)

Sum = _____
Weighted Section II Score (Do not round)

AP Grade Conversion Chart
Microeconomics

Composite Score Range*	AP Grade
73–90	5
58–72	4
45–57	3
33–44	2
0–32	1

* The students' scores are weighted according to formulas determined in advance each year by the Development Committee to yield raw composite scores; the Chief Reader is responsible for converting composite scores to the 5-point AP scale.

Composite Score

_____ + _____ = _____

Weighted Section I Score | Weighted Section II Score | Composite Score (Round to nearest whole number)

Table 4.3—Grade Distributions

More than 57 percent of the AP students who took this exam earned a qualifying grade of 3 or above.

	Exam Grade	Number of Students	Percent at Grade
Extremely well qualified	5	3,524	11.48
Well qualified	4	7,256	23.65
Qualified	3	6,841	22.30
Possibly qualified	2	5,477	17.85
No recommendation	1	7,586	24.72
Total Number of Students		30,684	
Mean Grade		2.79	
Standard Deviation		1.35	

Table 4.4—Section I Scores and AP Grades

For a given range of multiple-choice scores, this table shows the percentage of students receiving each AP grade. If you have calculated the multiple-choice score (**Weighted Section I Score**) by using the formula shown in Table 4.2, you can use this table to figure out the most likely grade that the student would receive based only on that multiple-choice score.

Multiple-Choice Score	AP Grade					Total
	1	2	3	4	5	
51 to 60	0.0%	0.0%	0.1%	9.7%	90.2%	9.0%
41 to 50	0.0%	0.0%	7.8%	76.6%	15.6%	21.9%
31 to 40	0.1%	12.5%	64.3%	23.0%	0.0%	26.2%
21 to 30	22.8%	60.3%	16.9%	0.0%	0.0%	22.1%
11 to 20	91.1%	8.9%	0.0%	0.0%	0.0%	13.9%
0 to 10	100.0%	0.1%	0.0%	0.0%	0.0%	7.0%
Total	24.7%	17.9%	22.3%	23.7%	11.5%	100.0%

How AP Grades Are Determined

As described in Chapter II, the Microeconomics exam has two sections. Section I consists of 60 multiple-choice questions and has a score range from 0 to 60 points. Section II has 3 essay questions that have scores that range from 0 to 12 for Question 1, 0 to 9 for Question 2, and 0 to 8 for Question 3.

For each student, scores on different parts of the exam are combined to produce a composite score that ranges from a minimum possible of 0 to a maximum possible of 90 points. In calculating the composite score, scores on different parts are multiplied by weights determined by the Development Committee. These weights are designed to place relative emphases on various skills that mirror the emphases in the corresponding college curriculum.

Composite scores are not released to students, schools, or colleges. Instead, the composite scores are converted to AP grades on a 5-point scale, and it is the AP grades that are reported. The process of calculating the composite score and converting it to an AP grade involves a number of steps. It is summarized in the Scoring Worksheet (Table 4.2) and described in detail below:

1. **The score on Section I is calculated.** In calculating the score for Section I, a fraction of the number of wrong answers is subtracted from the number of right answers. With this adjustment to the number of right answers, students are not likely to benefit from random guessing. The value of the fraction is 1/4 for the five-choice questions in the AP Microeconomics Exam. The weighted maximum possible score on Section I is 60, and it accounts for two-thirds of the maximum possible composite score.
2. **The score on Section II is calculated.** The raw scores on the three essay questions are multiplied by weights determined such that Question 1 contributes 50 percent and Questions 2 and 3 each contribute 25 percent to the maximum possible free-response section score. The weighted scores are summed to yield the total weighted Section II score. The weighted maximum possible score on Section II is 30, and it accounts for one-third of the maximum possible composite score.
3. **The composite score is calculated.** The weighted scores on Section I and Section II are summed to give a composite score.
4. **AP grades are calculated.** The Chief Reader sets the four cut points that divide the composite scores into five grades. A variety of information is available to help the Chief Reader determine the score range into which the exam grades should fall:
   - Statistical information based on test score equating
   - College/AP grade comparability studies
   - The Chief Reader's own observations of students' free-response performance
   - The distribution of scores on different parts of the exam
   - AP grade distributions from the past three years

See Table 4.3 for the grade distributions for the 2005 AP Microeconomics Exam.

If you are interested in more detailed information about this process, please visit AP Central (apcentral.collegeboard.com). There you will also find information about how the AP Exams are developed, how validity and reliability studies are conducted, and other data on all AP subjects.

College Comparability Studies

The Advanced Placement Program has conducted college grade comparability studies in all AP subjects. These studies have compared the performance of AP students with that of college students in related courses who have taken the AP Exam at the end of their course. In general, AP cut points are selected so that the lowest AP 5 is equivalent to the average A in college, the lowest AP 4 is equivalent to the average B, and the lowest AP 3 is equivalent to the average C (see below).

AP Grade	Average College Grade
5	
	A
4	
	B
3	
	C
2	
	D
1	

Research studies conducted by colleges and universities and by the AP Program indicate that AP students generally receive higher grades in advanced courses than do students who have taken the regular freshman-level courses at the institution. Colleges and universities are encouraged to periodically undertake such studies to establish appropriate policy for accepting AP grades and ensure that admissions and placement standards remain valid. It is critical to verify that admissions and placement measures established for a previous class continue for future classes. Summaries of several studies are available at AP Central. Also on the College Board Web site is the free Admitted Class

Evaluation Service™ (www.collegeboard.com/highered/apr/aces/aces.html) that can predict how admitted college students will perform at a particular institution generally and how successful they can be in specific classes.

Reminders for All Grade Report Recipients

AP Exams are designed to provide accurate assessments of achievement. However, any examination has limitations, especially when used for purposes other than those intended. Presented here are some suggestions for teachers to aid in the use and interpretation of AP grades.

- AP Exams in different subjects are developed and evaluated independently of each other. They are linked only by common purpose, format, and method of reporting results. Therefore, comparisons should not be made between grades on different AP Exams. An AP grade in one subject may not have the same meaning as the same AP grade in another subject, just as national and college standards vary from one discipline to another.
- Grade reports are confidential. Everyone who has access to AP grades should be aware of the confidential nature of the grades and agree to maintain their security. In addition, school districts and states should not release data about high school performance without the school's permission.
- AP Exams are not designed as instruments for teacher or school evaluation. Many factors influence AP Exam performance in a particular course or school in any given year. Thus, differences in AP Exam performance should be carefully studied before being attributed to the teacher or school.
- Where evaluation of AP students, teachers, or courses is desired, local evaluation models should be developed. An important aspect of any evaluation model is the use of an appropriate method of comparison or frame of reference to account for yearly changes in student composition and ability, as well as local differences in resources, educational methods, and socioeconomic factors.
- The *AP Instructional Planning Report* is sent to schools automatically and can be a useful diagnostic tool in reviewing course results. This report identifies areas of strength and weakness for the students in each AP course. The information may also provide teachers with guidance for course emphasis and student evaluation.
- Many factors can influence exam results. AP Exam performance can be affected by the degree of agreement between your course and the course defined in the relevant AP Course Description, use of different instructional methods, differences in emphasis or preparation on particular parts of the exam, differences in curriculum, or differences in student background and preparation in comparison with the national group.

Reporting AP Grades

The results of AP Exams are disseminated in several ways to students, their secondary schools, and the colleges they select.

- College and student grade reports contain a cumulative record of all grades earned by the student on AP Exams during the current or previous years. These reports are sent in July. (School grade reports are sent shortly thereafter.)
- Group results for AP Exams are available to AP teachers in the *AP Instructional Planning Report* mentioned previously. This report provides useful information comparing local student performance with that of the total group of students taking an exam, as well as details on different subsections of the exam.

Several other reports produced by the AP Program provide summary information on AP Exams.

- State, National, and Canadian and Global Reports show the distribution of grades obtained on each AP Exam for all students and for subsets of students broken down by gender and by ethnic group.
- The Program also produces a one-page summary of AP grade distributions for all exams in a given year.

For information on any of the above, please call AP Services at 609 771-7300 or e-mail apexams@info.collegeboard.org.

Purpose of AP Grades

AP grades are intended to allow participating colleges and universities to award college credit, advanced placement, or both to qualified students. In general, an AP grade of 3 or higher indicates sufficient mastery of course content to allow placement in the succeeding college course, or credit for and exemption from a college course comparable to the AP course. Students seeking credit through their AP grades should note that each college, not the AP Program or the College Board, determines the nature and extent of its policies for awarding advanced placement, credit, or both. Because policies regarding AP grades vary, students should consult the AP policy of individual colleges and universities. Students can find information in a college's catalog or Web site, or by using the AP Credit Policy search at www.collegeboard.com/ap/creditpolicy.

Appendix: Professional Development Opportunities, Support, and Resources

- Workshops, Conferences, Seminars, and Summer Institutes
- AP Central—Tools and Resources
- Publications and Resources
- Funding Opportunities

Workshops, Conferences, Seminars, and Summer Institutes

As briefly described below, most College Board workshops range from one to three days and serve:

- Middle and High School Teachers
- Administrators and Coordinators
- Counselors

This professional development directly supports those involved or interested in College Board programs, such as:

- Advanced Placement Program
- Pre-AP®
- PSAT/NMSQT®
- SAT Readiness Program™
- CollegeEd®
- MyRoad™

Further details about these workshops are available from your regional College Board office (see contact information on the inside back cover of this book).

Workshops and Conferences for Middle and High School Teachers

Advanced Placement Program

AP workshops, conferences, and seminars, led by an experienced member of the AP community and/or a College Board–endorsed consultant, guide participants through the skills students must master in the AP classroom and the most innovative teaching practices to help engage students. These events concentrate on specific subject-area topics and offer curricular assistance for the new (0–3 years teaching AP), intermediate (4–7 years teaching AP), and experienced (beyond 8 years teaching AP) teacher. These professional development events are offered in all AP subject areas: Art History, Biology, Calculus AB, Calculus BC, Chemistry, Chinese Language and Culture, Computer Science A, Computer Science AB, Economics: Macro, Economics: Micro, English Language and Composition, English Literature and Composition, Environmental Science, European History, French Language, French Literature, German Language, Government and Politics: Comparative, Government and Politics: U.S., Human Geography, Italian Language and Culture, Japanese Language and Culture, Latin Literature, Latin: Vergil, Music Theory, Physics B, Physics C: Electricity and Magnetism, Physics C: Mechanics, Psychology, Spanish Language, Spanish Literature, Statistics, Studio Art 2-D Design, Studio Art 3-D Design, Studio Art Drawing, U.S. History, and World History.

Half-Day AP Workshops

These condensed workshops explore updates in Course Descriptions and AP Exams. Teachers also learn effective tools and techniques to enhance critical thinking skills and communicate course content to students. Participants receive AP teacher materials that include course outlines; content-related handouts; and student samples, scoring guidelines, and commentary for the most recent AP Exam free-response questions. These sessions are approximately four hours in length.

One-Day AP Workshops

Participants learn some of the best tools and techniques for helping students acquire the skills needed to excel in the AP classroom, with special emphasis on the development of critical thinking skills. Participants review AP teacher materials that include course outlines; content-related handouts; and student samples, scoring guidelines, and commentary for the most recent AP Exam free-response questions; engage in discussions about appropriate classroom materials; learn specific techniques and content-specific strategies that can be incorporated into the AP classroom to help students prepare to be successful in AP course work; review data related to student performance on AP Exams and the scoring process; and become acquainted with electronic media used to support AP teachers (e.g., AP Central, electronic discussion groups).

Two-Day Specialty Subject Conferences for AP Teachers

A two-day specialty AP subject conference features outstanding presenters who are familiar with AP curriculum development, instruction, and the scoring of the free-response section of the exams. AP teachers will have the opportunity to explore content-related topics in great depth and participate in a professional exchange of ideas and practices. Each conference offers concurrent sessions on a variety of topics, including presentations on beginning an AP course, developing a syllabus, scoring free-response questions, and specific ideas and lessons that can be included in the AP classroom. Some conferences also contain sessions on Pre-AP topics. The strategies and techniques shared during the two days were developed and tested in classrooms by the endorsed consultants leading the conference. Participants will leave with lessons that can immediately be implemented into professional practice and a clear understanding of curriculum development in the specialty subject covered in the workshop. The fee for this conference does not include lodging or travel expenses.

AP Advanced Topics Seminars

These seminars provide AP teachers and other middle/high school teachers with the opportunity to delve into specific course content, to connect to the discipline's current work in that area, and to feed their passion for the discipline. The focus is on developing further mastery of content in the field, tied to the Course Description, but without the usual emphasis on teaching strategies that are key to the regular workshops and conferences. The regular workshops (see above) emphasize how teachers can work with students on particular course content, strategies, and methods; AP Advanced Topics Seminars emphasize the exciting work in the teacher's discipline—a way to gain further depth in a specific area of interest. AP Advanced Topics Seminars are led by experts in the field, usually a college faculty member, thus providing an opportunity for college faculty to share their interests, passions, and expertise with AP teachers.

An Introduction to the Advanced Placement Program and Pre-AP Professional Development

This one-day workshop has two distinct purposes. The first is to provide introductory information about the College Board's Advanced Placement Program to teachers who are unfamiliar with it. In this workshop, participants will learn about the College Board and its mission of connecting all students to college success, the purpose and benefits of the AP Program, the processes for developing and administering AP courses and exams, and the preparation students need for the AP Program. The second purpose of the workshop is to introduce participants to Pre-AP Professional Development. Pre-AP focuses on instruction during the years prior to AP courses and college. Workshop participants will learn about the College Board's philosophy for Pre-AP, the connection of Pre-AP to the AP Program, and Pre-AP strategies in English and Mathematics.

AP Summer Institutes

The College Board–endorsed AP Summer Institutes provide teachers with in-depth training in AP courses and teaching strategies. Participants engage in at least 30 hours of training led by College Board–endorsed consultants and receive printed materials, including AP Course Descriptions, sample syllabi, and lesson plans. Many locations offer guest speakers, field trips, and other hands-on activities. Each institute is managed individually by staff at the sponsoring institution under the guidelines provided by the College Board. Please contact the individual locations for detailed information about their course offerings.

AP Annual Conference

The AP Annual Conference is for K–16 educators focusing on equity, access, and academic excellence for all students. The conference provides IACET–endorsed professional development workshops in AP subjects and Pre-AP strategies, taught by expert consultants; discussion sessions about each AP Exam with the Development Committee and the executive directors of the AP Program; sessions on expanding access to the AP Program; nationally recognized keynote and plenary speakers; exhibits; and networking opportunities. Participants take home best practices learned from colleagues across the country, classroom materials, information on resources for AP teachers, and resources to assist in securing funds for AP and Pre-AP professional development.

Online Events and Workshops

AP Central offers online events and workshops to support, enhance, and expand the scope of the professional development opportunities at the College Board. These online sessions are offered to all teachers, counselors, and administrators and include informational events, sessions about topics of interest, and workshops offering CEU credits. Check out the series of innovative online events and workshops available on AP Central at apcentral.collegeboard.com/onlineevents/schedule.

Pre-AP Professional Development

Pre-AP is a suite of K–12 professional development resources and services. The purpose of Pre-AP is to equip all middle and high school teachers with the strategies and tools they need to engage their students in active, high-level learning, thereby ensuring that all middle and high school students develop the skills, habits of mind, and concepts they need to succeed in college. Pre-AP provides professional development to help teachers learn how to prepare students for the challenges of college-level work, such as those found in AP courses. This is done principally in two ways:

- Vertical Teaming—supporting teams of middle and high school teachers; and
- Classroom Strategies—supporting individual teachers with subject-specific approaches that can broaden access to college-level work.

Vertical Teaming

These workshops are designed primarily for new and experienced AP Vertical Teams®—groups of educators from different grade levels in a given discipline who work cooperatively to develop and implement a vertically aligned program aimed at helping students acquire the academic skills and habits of mind necessary for success in college-level work and AP courses. They are also suitable for individual teachers. Participants engage in activities that use content to introduce and illustrate the vertical teams concept and some of its key attributes. Sessions include time for reflection and discussion focused on the group dynamics created by the activity.

Building the AP Vertical Team

Pre-AP: Coaching and Sustaining Successful AP Vertical Teams
This one-day workshop is provided by the College Board and supported by local school districts. Its purpose is to train district-selected individuals to lead district and College Board initiatives in vertical teaming within the district. It is designed to facilitate the process of combining district/state curriculum and structures with those of the College Board so that the two work successfully together to accomplish mutual goals. This workshop will provide a rich learning environment that will enable participants to understand the critical role of an AP Vertical Team coach; use strategies to assist AP Vertical Teams to function effectively; develop or adapt strategic plans that ensure that all students have equal access to challenging courses such as AP courses; learn ways to develop AP Vertical Team curriculum, goals, and plans that align with national and state standards, district strategic plans, and local school improvement plans; strengthen leadership skills; and establish and maintain relationships with College Board staff and other stakeholders.

Pre-AP: Setting the Cornerstones™ for the AP Vertical Team
This one-day workshop is for organized AP Vertical Teams. Participants will be provided with information about the College Board and the Advanced Placement Program and will learn to engage teams in strategies for establishing coherence, commitment, collegiality, and collaboration among their members. The workshop addresses establishing, maintaining, and evaluating AP Vertical Teams.

English

Pre-AP: Topics for AP Vertical Teams in English
Through a series of hands-on activities and group discussions in this one-day workshop, participants learn how an English AP Vertical Team can be centered around and driven by content, such as strategies for fiction and nonfiction. They will understand the benefits of a streamlined and connected curriculum for both teachers and students. An overview of the AP English Literature and AP English Language Exams will be provided. Topics addressed include: literary analysis, analytic strategies for nonfiction, and team decision making.

Pre-AP: Advanced Topics for AP Vertical Teams in English—Grammar
This one-day workshop draws from cognitive research on language acquisition and examines some of the best practices from traditional grammar instruction, linguistics, writing, and the whole language approach. Experienced English teachers understand that grammar cannot be isolated from other aspects of language arts instruction. They also know that there is no single correct approach to this complex subject. Specific topics include: rules of usage, parts of speech, patterns of words, structure of sentences, and arrangement of sentences. Through activities, participants will examine the role grammar plays in promoting clear communication and close reading skills. When appropriate, discussions of rhetoric and style will be added.

Mathematics

Pre-AP: Topics for AP Vertical Teams in Mathematics
This one-day workshop focuses on articulating a curriculum anchored in the skills, knowledge, and habits needed for AP mathematics courses. Teachers concentrate on what and how they teach, as well as how they communicate with each other. Teachers will learn the benefits and challenges of vertical teaming and gain an arsenal of activities to use with team members. Some of the activities include: "What's in It for Me?," "The Least Expensive Cable," "Defining Our Terms," and "What Is the Common Thread?"

Pre-AP: Advanced Topics for AP Vertical Teams in Mathematics—Assessment
This one-day workshop teaches middle and high school math teachers techniques of assessment designed to support instruction for students as active learners and problem solvers. Educators increasingly recognize that the purpose of classroom assessment of student achievement is to help teachers make decisions about instruction. Assessments, reliability, validity, scoring guidelines, and performance appraisals are the key topics covered in this workshop.

Music Theory

Pre-AP: Topics for AP Vertical Teams in Music Theory
Because it teaches and reinforces music theory skills and concepts from one grade level to the next, a Vertical Team in music is an ideal way to prepare students for AP Music Theory. This one-day workshop shows how content can drive the collaboration and communication among music teachers (not just music theory teachers, but classroom, band, choir, and orchestra teachers as well) to further music literacy in students and help them develop as musicians. Specific topics addressed will include musical analysis and listening skills. Teachers will gain an understanding of the impact team building within music departments and the district has on the overall learning experience of the student when preparing for the AP Music Theory Exam.

Science

Pre-AP: Topics for AP Vertical Teams in Science
This one-day workshop is for teachers, counselors, and administrators interested in sequencing curricula and instruction to facilitate student preparedness for AP science courses and for college. Topics covered include density junctures, measuring devices, and national science standards. The workshop also addresses teaming activities such as sequencing, goal planning, and action plans. At the end of the workshop, participants will understand what a Vertical Team is and the process that is necessary to incorporate vertical sequencing into their curricula.

Social Studies

Pre-AP: Topics for AP Vertical Teams in Social Studies
Participants in this one-day workshop will see how an AP Vertical Team can be centered around and driven by content. At the completion of this session, they will understand the benefits of a streamlined and connected curriculum for both teachers and students. The workshop focuses on articulating a middle and high school curriculum anchored in the skills, knowledge, and habits of mind needed for AP social studies courses. Specific topics include the critical question, creating effective essay questions, approaching the essay, and CORE structure.

Pre-AP: Advanced Topics for AP Vertical Teams in Social Studies—Developing Reading Habits
This one-day workshop gives social studies teachers new strategies to develop their students' ability to read critically. The workshop is based on the premise that a coherent, articulated program of effective strategies will improve student performance in essay writing by giving students a framework that allows them to develop their writing proficiency. Although individual teachers will benefit from the strategies presented here, the power of the strategies is best realized through an AP Vertical Team that spans both middle and high school social studies classes. Topics addressed include reading research, questioning grids, main idea clusters, text charting, reading pods, and utilizing the AP Vertical Team to develop analytical and critical reading skills.

Studio Art

Pre-AP: Topics for AP Vertical Teams in Studio Art
Participants in this one-day workshop will become familiar with the College Board's mission to provide access and equity. Participants will learn strategies used by AP Studio Art Vertical Teams in developing curricula in 2-D, 3-D, and Drawing courses; learn the content and skills necessary for student success in AP Studio Art; and become familiar with the standards of a vertical curriculum and the role of Pre-AP in helping to develop those standards. Topics addressed include making the case for an AP Vertical Team in Studio Art, depth and concentration, portfolios and portfolio evaluation, strategy development across grade levels, using sketchbooks and journals, and assessment.

World Languages and Cultures

Topics for AP Vertical Teams in World Languages and Cultures

During the course of this one-day workshop, participants will learn about topics related to the creation of strong teams of language educators, within the same school setting and across grades, with the goal of growing effective, advanced programs of language study. Curriculum articulation, the American Council on the Teaching of Foreign Languages Standards, and shared reflective practice will be discussed. Participants will also consider skills articulation across grade levels, and how to build students' fluency for long-term retention and success. This workshop will be presented in English with examples in English.

Classroom Strategies

The classroom strategies workshops provide in-depth discussions and activities for middle and high school educators. Participants will improve their understanding of content, instructional strategies, and pedagogical methods that will help their students succeed in college and rigorous high school courses, such as those offered by the AP Program.

English

Pre-AP: Strategies in English—Beyond Acronyms: Inquiry-Based Close Reading

This one-day workshop is designed to help middle and early high school teachers facilitate inquiry-based practices through close reading in their classrooms. Questioning strategies are used to promote critical thinking, starting at the introductory level. The workshop teaches participants classroom strategies that allow students to ask and generate questions, develop the ability to actively engage with any text, and analyze and document their own thinking while reading. Topics addressed include close reading questioning, critical thinking question stems, dialectical journaling, analytical writing, and holistic assessment.

Pre-AP: Strategies in English—Rhetoric

This one-day workshop is designed to help teachers understand the classical art of rhetoric in its two senses: language as crafted for an audience; and the ability to find, evaluate, and potentially use all of the available tools of language to achieve a purpose or an effect in a given situation. Participants will learn effective techniques by engaging in activities that will enable them to teach their students important rhetorical theory principles—such as the importance of the unstated assumption in both the creation and analysis of arguments, the nature of arrangement, and relation of style to form—that underlie the effectiveness of excellent writers and support the clear thinking and sound judgment of successful readers.

Pre-AP: Strategies in English—Reading to Write

This three-day workshop is designed to encourage and support teachers as they reflect on the strategies that they can use in the English language arts classroom to create and foster a learning-centered environment. The goals for participants in the workshop are to identify, practice, and reflect on key reading and writing strategies that can be immediately incorporated in the classroom; to recognize and apply the attributes of a "learning-centered" classroom; and to engage in collaborative dialogues with other language arts teachers through online technology and "cognitive coaching" sessions. Topics addressed include lesson planning and cognitive coaching. This is a three-day event; two days face-to-face and one day online.

Pre-AP: Strategies in English—Writing Tactics Using SOAPSTone

The focus of this one-day workshop is on classroom tactics that help students to analyze good writing and to apply this knowledge when creating their own texts. In this one-day workshop, both middle and high school teachers will find activities that can benefit their students. Participants will reflect upon and discuss and understand the concepts underlying these activities, such as the writing process, narrative, the persuasive essay, analytical writing, and assessing student writing.

Pre-AP: Strategies in English—A Serious Approach to Teaching Comedy

This one-day workshop is designed to help middle and high school English teachers build a repertoire of strategies for responding to comic writing. Working with examples that illustrate recurring features of structure, language, and reasoning that are the foundation for studying comedy of any period, participants will build a working vocabulary for describing the genre's patterns, conventions, and effects. The workshop will investigate both the elements of comedy—sight, sound, structure, situation, plot, and character types—and its special modes—farce, parody, satire, and irony. Most important, this workshop will explore techniques teachers can use to encourage students to be analytical about a mode that works because it is quirky.

Strategies in English—Differentiated Instruction for Middle School Language Arts
This one-day workshop will focus on differentiated classroom strategies that allow all students access to high-level language arts content. While the activities can be modified for high school students, the content is more appropriate for a middle school audience. High school teachers who are part of an AP English Vertical Team can benefit from this workshop by modifying the strategies for their students. Administrators might also be interested in the strategies, as they can be applied to all disciplines. At the end of the workshop, participants will be able to apply differentiated instruction strategies to product, process, and content in their language arts curriculum; understand why it is important to build a strong relationship with students; understand the need to assess students continually; understand how to present all students with equally challenging curriculum; and empower students to take charge of their own learning.

Pre-AP: Strategies in English—The Five-S Strategy for Passage Analysis
This one-day workshop introduces strategies that will enable teachers and students to become more systematic in the literary analysis that precedes the writing of analytical compositions. Teachers are shown a loose and adaptable approach that students may reliably use (especially under time constraints) to analyze a passage—whether poetry or prose—by focusing on speaker, situation, key sentences, shifts, and syntax.

Mathematics

Pre-AP: Strategies in Mathematics—Helping Students Learn Mathematics Through Problem Solving
This two-day workshop provides strategies for designing and using meaningful investigations, writing dynamic problems, and enhancing current classroom activities so that students will develop deeper understanding and produce more thoughtful responses. Teachers will gain an understanding of how successful students learn and how to develop those skills in others, as well as how to build relevant, informative assessments that allow teachers to monitor and foster mathematical thinking without interrupting instruction. The general themes of this workshop include designing multiple-access problems, mathematical literacy, and improving mathematical communication.

Pre-AP: Strategies in Mathematics—Analyzing and Describing Data
This one-day workshop enriches the data analysis topics taught in the middle and secondary grades by providing examples of activities where students collect data, use graphs and numerical summaries to get information from data, and communicate that information. By assuming the role of the student and through discussion, participants will learn engaging strategies to discuss data collection and experimental design issues as they work through exercises and share observations and conclusions. Please note that science educators will also find this workshop beneficial.

Strategies in Mathematics—Developing Algebraic Thinking
This one-day workshop is for mathematics teachers in grades 6–10. It provides teachers with hands-on activities and techniques to help students develop algebraic reasoning. A key feature of this workshop is the use of graphing calculators to help students visualize and explore algebra from graphic, numerical, and analytical perspectives as well as from traditional symbolic representations. Objectives for participants in this workshop include learning to develop techniques by using inquiry learning in teaching algebraic thinking, using patterns to find relationships, using tables in investigating relationships, and describing patterns using both recursive and closed relationships.

Pre-AP: Strategies in Mathematics—Rate
This one-day workshop emphasizes the grade-level-appropriate content, classroom strategies, diagnostic assessment practices, and technology that foster student understanding of rate. Teachers learn highly effective activities to use in the classroom. The focus is on illustrating how content, pedagogy, and embedded assessment can help shape the mathematics curriculum into a seamless strand for students. Specific topics include absolute and relative growth, instantaneous rate, and rate of change.

Pre-AP: Strategies in Mathematics—Accumulation
In this one-day workshop, teachers examine a seamless development of accumulation concepts for grades 6–12 through grade-level-appropriate content, classroom strategies, and technology usage. Teachers experience a guided-exploration approach that they can use in the classroom to build knowledge and further understanding for each student. Teams develop problems, instructional activities, assessment items, and cross-grade lessons for classroom use. Participants learn embedded diagnostic and formative assessment strategies that can be used to develop students' communication skills and allow teachers to monitor and foster mathematical thinking. Specific topics include the concept of area; accumulating distance when speed is constant, changes, or is a function; velocity distinct from speed; and the big picture of accumulation.

Pre-AP: Strategies in Mathematics—Functions
This one-day workshop develops deep content knowledge of function for teachers and discusses grade-level-appropriate content and classroom strategies, including using technology to promote understanding. Teachers will acquire skills that promote methodical thinking and clear communication of thought processes by all of their students. This workshop illustrates a guided-exploration approach as a pedagogical model that emphasizes student thinking as the key to learning and communication as the key to assessing understanding. Specific topics include linear, quadratic, and nonlinear functions.

Pre-AP: Strategies in Mathematics—Chance, Variation, and Probability
This one-day workshop uses recent research on the learning of probability to engage teachers in classroom activities that enable students to analyze and understand chance events. The activities progress through elementary definitions and concepts of probability, culminating in the use of simulation to model probability problems. Participants gain significant knowledge about finding and correcting student misinterpretations about these events and discover ways to improve student understanding through reflection and communication. Teachers learn to develop activities for the classroom that help connect the content to events relevant to students and their lives. Specific topics include classical probability; law of large numbers; and probability rules, distributions, and conditions.

Science

Pre-AP: Strategies in Science—Creating a Learner-Centered Classroom
This two-day workshop is designed to assist science teachers in creating a facilitative classroom that focuses on inquiry; encourages higher levels of thinking for all students; and orchestrates discourse through speaking, writing, and graphic representation. Specific strategies addressed include inquiry-based learning, discussion and discourse techniques, a five-stage instructional model, inductive thinking, discrepant events, brainstorming, assignment of roles in collaborative groups, and graphic organizers. The workshop provides strategies for designing and using meaningful investigations, writing dynamic problems, and enhancing current classroom activities so that students will develop a deeper understanding and produce more thoughtful responses. Teachers will gain a clear understanding of how successful students learn and how to develop those skills in others, as well as building relevant, informative assessments that allow teachers to monitor and foster scientific thinking without interrupting instruction. Workshop topics include engagement, exploration, explanation, elaboration, and evaluation.

Strategies in Science—Data Collection in Inquiry-Based Biology
This is a two-day workshop in the use of graphing calculators and sensors in middle and high school biology instruction. At the end of this workshop, participants will understand how to integrate technology as an instructional strategy to teach content standards in middle and high school biology curricula; how to provide inquiry-based investigations in biology that enable middle and high school students to apply technological skills and instrumentation needed for college-level and AP Biology course work; and how to provide professional development consistent with the National Education Science Standards.

Pre-AP: Strategies in Science—Energy Systems
This one-day workshop was developed for high school science teachers interested in designing integrated, theme-based instruction to prepare students for AP science courses. The activities and discussions in this workshop are designed to help teachers identify concepts in energy that extend across all science subjects. At the end of the workshop, participants will understand how to identify energy concepts in biology, earth science, chemistry, and physics and how to make curriculum decisions to increase student achievement and better prepare students for AP science courses. Topics addressed include kinetic versus potential energy, heat versus temperature, bonding, and energy transformations in living systems.

Pre-AP: Strategies in Science—Inquiry-Based Laboratories for Middle Schools
This one-day workshop introduces middle school science teachers to inquiry-based laboratory instruction. Through activities and discussions, participants will learn to use inquiry-based laboratories to teach science processing, critical thinking, and problem-solving skills to students and prepare them for the rigorous course work in high school and college. Topics addressed include: laboratory roles, traditional versus inquiry-based laboratory activities, using inquiry-based labs to teach critical thinking skills, and assessing inquiry-based laboratory activities.

Pre-AP: Strategies in Mathematics—Analyzing and Describing Data
This one-day workshop enriches the data analysis topics taught in the middle and secondary grades by providing examples of activities where students collect data, use graphs and numerical summaries to get information from data, and communicate that information. By assuming the role of the student and through discussion, participants will learn engaging strategies to discuss data collection and experimental design issues as they work through exercises and share observations and conclusions. Please note that science educators will also find this workshop beneficial.

Social Studies

Strategies in Social Studies—Using Visual Materials in Middle School Classrooms
This one-day workshop will present middle school teachers with strategies for analyzing and synthesizing nontext sources in middle school history and geography classrooms. The participants will examine models of questioning for works of art, cartoons, quantitative data such as charts or graphs, and photographs. Once these models have been presented, participants will use them to construct thesis statements and written passages about issues affecting middle school social studies courses, with the aim of promoting student skills of source analysis, evaluation, and synthesis.

Pre-AP: Strategies in Social Studies—Writing Tactics Using SOAPSTone
This one-day workshop is designed to help middle and early high school social studies teachers address some of the problems students encounter in their writing. When teachers from all grade levels work together to introduce and reinforce critical thinking and analytical writing strategies, students are more likely to acquire the habits of mind and skills of sophisticated writers. Workshop topics include: the writing process, narrative, the persuasive essay, and analytical writing.

Spanish

Pre-AP: Strategies in Spanish—Developing Language Skills
The goal of this one-day workshop is to enable teachers to prepare students for the AP Spanish Language course by fostering development of language skills. The workshop motivates and inspires Spanish teachers to reevaluate their school's foreign language curriculum and familiarize themselves with the basic principles of reading assessments, writing an essay, brainstorming, vocabulary building, sentence structure, listening, reading, and speaking. Assessment instruments are also discussed.

Pre-AP: Strategies in Spanish—Literary Analysis
The goal of this one-day workshop is to enable teachers to help students develop the reading skills necessary for the AP Spanish Literature course. The focus is on reading comprehension of Spanish text passages. Prereading, reading, and postreading skills are emphasized. Assessment is also discussed.

Pre-AP: Strategies in Spanish—Writing Skills
With the completion of this one-day workshop, participants will gain a better understanding of how to design writing instruction that enhances students' preparedness for AP Spanish Language courses. Topics addressed include writing processes, essays, and assessing writing.

World Languages and Cultures

Strategies in World Languages and Cultures—Building Proficiency
The goal of this one-day workshop is to present world language teaching and learning strategies, grounded in the American Council on the Teaching of Foreign Languages Standards, that build beginning and intermediate students' proficiency in the target language. By examining the best ways to achieve acquisition of new language, target language production, and retention of acquired skills, participants will learn how to prepare their students for more advanced language study. The workshop will focus on communicative and cultural skills integration, designing activities for a variety of learning styles, and building success for new second language learners. This workshop will be presented in English with examples in English.

Interdisciplinary

Pre-AP: Interdisciplinary Strategies—Argumentation and the Writing Process
This one-day workshop is designed to help social studies, English, and humanities teachers address a task challenging many middle and high school students: that of developing a logical and effective argument. This workshop presents strategies for middle and high school teachers that enable students to discover and work with the elements of argumentation. Topics addressed in the workshop include using texts to analyze and construct arguments and assessing written performance.

Pre-AP: Interdisciplinary Strategies for English and Social Studies
This two-day workshop shows English and social studies teachers how to encourage students across grades and at all ability levels to engage in active questioning, analysis, and the construction and communication of arguments—skills that are fundamental to advanced work in both subject areas. Participants will discuss strategies that direct students to ask questions and draw inferences, the SOAPSTone technique for critical reading and analytical writing, levels of questioning, dialectical notebooks/journals, the yes/but strategy for analyzing an argument, synthesizing perspectives from different points of view, and construction of good written and verbal arguments.

Instructional Leadership

See descriptions provided on page 64.

SAT Readiness Program™

The foundation of a student's college preparation is a rigorous curriculum of English, mathematics, science, history, and other academic subjects. Students should read extensively and develop good writing skills. SAT Readiness Program workshops teach educators how to promote and reinforce these skills to prepare all students for the SAT® and college success.

Animated Student Writing
This one-day workshop gives English teachers models, lesson plans, and strategies to help students strengthen their argumentative writing skills.

Holistic Scoring Workshop
This one-day workshop provides teachers with practice using holistic scoring, which judges a piece of writing by the overall impression it creates.

Writing Preparation for ESL/ELL Students
This one-day workshop helps teachers prepare students who have recently exited ESL/ELL classes for the writing section of the SAT by using models and hands-on exercises.

School-Based SAT Preparation Workshop
This one-day workshop provides teachers with activities and materials to design school-based SAT preparation sessions. The first half of the workshop brings to life material in *The Official SAT Teacher's Guide™*. Teachers are separated during the second half of the workshop and will focus on english or math content areas.

Workshops for Administrators and Coordinators

Advanced Placement Program

Growing an AP Program: A Workshop for Administrators
This workshop provides an in-depth survey of effective ways to start and support an AP program. Beginning with a review of the benefits of AP for schools, this workshop explores ways that administrators can provide support for their AP teachers and students. In addition, this workshop helps administrators learn how to use data effectively to promote equitable growth and provides tools for assessing strengths and weaknesses of existing AP programs, with an emphasis on areas of future growth. Finally, the workshop covers specific administrative topics, such as models for obtaining financial support from community organizations; effective school policies (grade weighting, setting expectations for exam-taking); and effective use of block schedules to offer AP courses.

Organizing Your AP Exam Administration: A Workshop for AP Coordinators
This half-day workshop provides new and less experienced AP Coordinators with information needed to effectively and successfully manage an AP program. Topics covered in this workshop include ordering AP Exams, conducting a preadministration session, training proctors, setting up off-site testing, administering exams to students with disabilities, administering exams that require audio or visual equipment, maintaining exam security, handling irregularities and disruptions, and returning and paying for AP Exams.

Summer Institute for Administrators
This vital professional development opportunity is for school administrators, district administrators, and AP Coordinators. Participants learn about the latest developments in the Advanced Placement Program before they are announced publicly; network with administrators and Coordinators from around the United States; meet the executive director of the AP Program; ask questions and make suggestions; and attend dynamic sessions featuring speakers with ideas on how to start, improve, or enhance an AP program. Session titles include Expanding Support for AP in My School or District, How Colleges View AP, Optimizing Data and Reports to Inform Instruction, Arranging Off-Site Testing, Recruiting and Retaining AP Students, and Recruiting and Mentoring AP Teachers. This institute is offered during the summer. Please visit apcentral.collegeboard.com for up-to-date information.

Instructional Leadership

Instructional Leadership workshops provide strategies that help integrate professional development into a systemwide process for improving instructional practices and student learning. Specific topics include creating AP Vertical Teams to develop a school culture that improves the teacher's capacity to provide quality instruction in the school and the district; supporting existing practices and creating new settings where learning can occur; providing structure to support systems that transform information into knowledge; and implementing policies to provide academically challenging instruction for all students.

Instructional Leadership Strategies—Inclusion of Special Needs Students in Curriculum That Leads to College
This one-day workshop is for middle school and high school administrators who have building-level or districtwide responsibilities for curriculum and instruction. At the end of the workshop, participants will have the knowledge and skills to plan, implement, and evaluate their school or district's inclusion of students with special needs in courses that lead to college. Participants will explore how their beliefs impact inclusion of students and student performance; develop a working definition of inclusion; define who are students with special needs; gain an understanding of the interconnectedness of legislation, inclusion, and student performance; learn how to use quality indicators in planning, implementing, and evaluating inclusion programs; gain a clearer understanding of test accommodations; and develop a model for schools to meet College Board documentation guidelines (SAT, PSAT/NMSQT, and the AP Program).

Pre-AP: Instructional Leadership Strategies—Using Data to Improve Student Preparation for AP Courses
This one-day workshop is designed for administrators, counselors, and teachers interested in collecting, organizing, analyzing, and using data for continuing school improvement and creating access to AP courses for all students. At the end of the workshop, participants will understand how to use data effectively to make placement and curricular decisions. Topics addressed include destroying achievement myths, using data to close achievement gaps, disaggregating data, and assessing policies and practices.

Pre-AP: Instructional Leadership Strategies—Promoting Excellence and Equity in AP Courses
This one-day workshop is designed for administrators, counselors, and teachers interested in examining issues related to the development of instructional programs that reflect excellence and equity. The activities and discussions in this workshop are designed to help participants identify excellence and equity concepts that apply to all subject areas and further prepare students for AP courses. At the end of the workshop, participants will understand how to create high-achievement classrooms accessible to all students and make curricular decisions to increase student achievement and access to AP courses.

Pre-AP: Instructional Leadership Through AP Vertical Teams
This one-day workshop is designed for secondary instructional leaders: school board members, superintendents, principals, central office staff, and counselors. Participants learn how Pre-AP professional development, specifically AP Vertical Teams, can be used to create a system that challenges all students to perform at rigorous academic levels. At the end of the workshop, participants will be able to include Pre-AP professional development and AP Vertical Teams in school development plans; organize and develop support systems for AP Vertical Teams; and evaluate the impact of AP Vertical Teams on school improvement.

PSAT/NMSQT

PSAT/NMSQT Connections: Using PSAT/NMSQT Reports to Improve Student Learning
This half-day workshop for teachers of math and English, curriculum coordinators, guidance counselors, and administrators in grades 9 through 11 provides educators with hands-on training in the use of standard and optional reports that are based on annual PSAT/NMSQT results. These reports include the following: Score Report *Plus*, Summary Reports, Summary of Answers and Skills (SOAS), AP Potential, and comprehensive student data on disk. At the end of the workshop, educators will be able to use the valuable data that come out of the PSAT/NMSQT program to shape instructional goals in the classroom; understand how to interpret data effectively to spot disparities between their schools/students and state, national, and comparable groups; and identify curricular and academic strengths and weaknesses.

SAT Readiness Program

See description provided on page 63.

Online Events and Workshops

See description provided on page 56.

Workshops for Counselors

College Advising Basics for School Counselors
This one-day workshop is designed for school counselors with less than three years of experience and is focused on the transition from high school to postsecondary education. Participants leave this workshop with a better understanding of the college admissions and enrollment process and the needs and challenges of students and parents pursuing educational options after high school.

Financial Aid Basics for School Counselors
This half-day workshop is intended to provide participants with a better understanding of the school counselor's role in the financial aid application and eligibility process. The workshop assists school counselors in identifying tools that they can use in helping students and families move through the financial aid process. This workshop also helps counselors understand the concept of need-based financial aid; the application and eligibility process that helps millions of students share billions of dollars in scholarships, grants, loans, and student employment; and the role of the school counselor as a partner in helping students make informed enrollment decisions.

Internet Fundamentals and Presentation Design Technology for Counselors
This workshop is a half-day experience for school counselors that will provide them with technology skills to be used with their school community. Using collegeboard.com and myroad.com as examples, counselors will learn and familiarize themselves with various features of Internet usage so that they can help their students use the Internet for career and college decision making. Other elements that will be taught in the workshop include an integration of Microsoft Office with the above-mentioned Internet sites to produce newsletters and presentations for students and parents. For example, the PowerPoint presentation that the College Board provides for PSAT/NMSQT and/or SAT preparation will be used to learn functions of PowerPoint, and news from collegeboard.com will be included in either a presentation or student/parent newsletter.

School Counselors Navigating the Legal and Ethical Issues of Post Secondary Transitions—National Office for School Counselor Advocacy (NOSCA)
This one-day workshop uses case studies to help participants improve their knowledge and understanding of the ethics of equitable programs, malpractice in academic advising, legal requirements governing educational records, the legal and ethical practice of writing letters of recommendation, the impact of dual relationships, the responsibilities of professional distance, the complications of confidentiality, and minors' rights to privacy.

Use of Data As a Tool for Systematic Change for School Counselors—National Office for School Counselor Advocacy (NOSCA)
This one-day workshop is for practicing school counselors. Participants will learn how to access, analyze, disaggregate, cross-tabulate, and chart longitudinal data directly linked to student achievement through the use of data sources such as national databases; state, district, and school report cards; and outside sources such as College Board reports. Additionally, participants will learn how to assess their current programs and services to begin the process of developing a data-driven school counseling program.

Fall Counselor Workshops
More than 200 Fall Counselor Workshops are conducted around the country during September and October. These workshops provide thousands of school counselors with updates on College Board programs and services for the new school year. This information will enable counselors to provide an array of services to students in an effective and efficient manner. Every school is sent a calendar of workshops in a separate mailing. To register for a Fall Counselor Workshop near you, go to www.collegeboard.com/meetings.

Instructional Leadership

See descriptions provided on page 64.

PSAT/NMSQT

See description provided on page 64.

SAT Readiness Program

See description provided on page 63.

CollegeEd®

This half-day workshop provides teachers, school counselors, district representatives, and school administrators with the opportunity to explore the many benefits of CollegeEd (3rd edition), as well as the varying teaching methodologies, delivery models, and strategies. By reviewing the *Teacher's Guide and Family Handbook*, participants are able to appreciate the innovative lessons in the six-unit program, which explores careers, academic planning, and applying and paying for college. Participants discuss the optional teaching strategies, assessment rubrics, and lesson preparations to meet their students' needs and their schools' criteria. During the workshop, participants also begin to review the ASCA standards and NCLB strategies and goals aligned with the program and compare them to those at their school or district.

MyRoad™

MyRoad (www.myroad.com) is a Web-based guidance program available free of charge to all students taking the PSAT/NMSQT, that is designed to take into account the personal and individual nature of the major, college, and career planning process. This half-day workshop is designed to provide school counselors, career counselors, and guidance administrators with training in the use of MyRoad's in-depth college and career planning features for students and MyRoad's unique student management tools for counselors. Participants will build expertise in the use of this online program through hands-on training and case studies that utilize MyRoad to achieve specific guidance standards and goals.

Online Events and Workshops

See description provided on page 56.

AP Central®—Tools and Resources

AP Central (apcentral.collegeboard.com) is the College Board's official online home for the AP Program and Pre-AP. AP Central offers unique tools and resources as well as the most current AP Program and exam information, such as exam formats, sample free-response questions, scoring guidelines, sample student responses, and scoring commentary. Information about state initiatives, federal funding, and opportunities for professional involvement with the AP Program are also available.

The free and easy registration enables members to personalize their AP Central experience by course and geographic location.

The "Contact Us" tool allows anyone to fill out a form to submit questions about the Program, courses, or exams.

AP and Pre-AP Content

Each AP course has its own Course Home Page on AP Central (apcentral.collegeboard.com/coursehomepages). These pages contain links to general course and exam information, teaching resource materials, syllabi, lesson plans, feature articles, and reviews in the Teachers' Resources section, a database of over 3,000 original reviews of textbooks, software, videos, Web sites, and other teaching materials. This database assesses each resource for its suitability to the AP classroom. Each AP course also has its own e-newsletter—an e-mail announcement of new additions to AP Central for the course. The AP Central staff sends out at least two editions of each e-newsletter every school year. Also, the Teachers' Corner for Pre-AP section is filled with articles and sample workshop materials.

Professional Development Event Search

Use the "Institutes & Workshops" search page to find information about AP and Pre-AP workshops, summer institutes, and professional development events. Information about professional opportunities to become a College Board consultant and an AP Exam Reader is also featured.

The College Board also has a growing online events program that enables participants to join in live professional development events from home or school computers. These online sessions are offered to teachers, counselors, and administrators and include informational events, sessions about topics of interest, and workshops offering CEU credits. Check out the series of innovative online events and workshops available on AP Central at apcentral.collegeboard.com/onlineevents.

AP Community

AP Central hosts an electronic discussion group (EDG) for each AP course (apcentral.collegeboard.com/community/edg). This free resource is a great way to share ideas, syllabi, and teaching techniques, and to discuss other AP issues and topics. Through the Community Contacts feature, members can send e-mail messages to others selected by state, by professional role, by experience level, and by course. Member e-mail addresses will not be shared, until and unless the member chooses to respond.

Publications and Research

The *AP Coordinator's Manual,* Course Descriptions, and many other AP publications are available on the site free of charge. Also available are forms such as the AP Order Form and applications for AP workshops and summer institutes.

AP Central offers statistical information and data including state, national, Canadian, and global reports; minority student participation rates; and AP student performance in college.

Updated News and Information

AP Central is updated regularly with new feature stories written by AP teachers and college faculty about AP-related topics and themes; AP Program, course, and exam updates; new Teachers' Resources reviews; and listings of professional development events.

Publications and Resources

The Advanced Placement Program and the College Board offer numerous resources in support of AP courses and examinations. There are several options for ordering these materials.

Online: The College Board Store

Visit the College Board Store (store.collegeboard.com) to see descriptions of AP publications and to place an order.

Phone and Fax

Credit card orders may be placed by calling 800 323-7155, Monday through Friday, 8 a.m.–9 p.m. ET. Credit card orders and institutional purchase orders above $25 may be faxed anytime to 888 321-7183.

Mail

To purchase by mail, you need to fill out an AP Order Form. If you need a copy of an order form, you can download one from AP Central (apcentral.collegeboard.com/forms).

Send a completed order form with your check, money order, purchase order, or credit card (payment must accompany all orders) to:

College Board Publications
P.O. Box 869010
Plano, TX 75074

Unless otherwise specified, orders will be filled with the currently available edition; prices are subject to change without notice. Payment must accompany all orders not on an institutional purchase order or credit card. Checks should be made payable to the College Board. Postage will be charged on all orders.

Publications may be returned for a refund (less postage) if they are returned within 30 days of invoice. Software and videos may be exchanged within 30 days if they are opened or returned for a full refund if they are unopened. No collect or C.O.D. shipments are accepted.

Many AP publications, including teaching units, syllabi, and more, are available as PDF files, either for free on AP Central or for purchase in the College Board Store.

Following are descriptions of some of the various AP publications and resources:

Pre-AP Resources

Several guides are available or in development to support AP Vertical Teams:

- *AP Vertical Teams Guide for English*
- *AP Vertical Teams Guide for Studio Art*
- *AP Vertical Teams Guide for Music Theory*
- *AP Vertical Teams Guide for Social Studies*
- *AP Vertical Teams Guide for Science*
- *AP Vertical Teams Guide for Mathematics*
- *AP Vertical Teams Guide for World Languages and Cultures*

Course Descriptions

AP Course Descriptions are available for each subject on AP Central for free and for purchase at the College Board Store (store.collegeboard.com). They serve as an AP teacher's primary resource for information on a particular course and exam. The descriptions outline course content, explain the kinds of skills students are expected to demonstrate, and give valuable information about the exams. Sample multiple-choice questions with an answer key are included, as are sample free-response questions.

Released Exams

Released exam books in each AP subject are published periodically. Each book contains a complete copy of a particular exam, including the multiple-choice questions and answers. Released exam books describe the process of scoring the free-response questions, and include examples of students' actual responses, the scoring guidelines, and commentary that explains why the responses received the scores they did. You can purchase released exam books at the College Board Store (store.collegeboard.com).

Sample Syllabi

Sample syllabi for each subject are available on AP Central at apcentral.collegeboard.com/courses/syllabi. The majority of the syllabi have been written by high school AP teachers who teach in public or private schools. Because AP courses are designed to cover material usually taught at the college level, syllabi from college professors are also included. Additional sample syllabi for some courses are available through the College Board Store (store.collegeboard.com).

Teacher's Guides

Developed by AP teachers and college and university faculty, Teacher's Guides are an excellent resource for both new and experienced AP teachers. Each contains sample syllabi, detailed course outlines, lists of recommended resources, and innovative teaching tips.

APCD® CD-ROMs

CD-ROMs are available for AP Calculus AB, English Literature, European History, and U.S. History. They each include actual AP Exams, interactive tutorials, exam descriptions, answers to frequently asked questions, study-skill suggestions, and test-taking strategies. The teacher version of each CD, which can be licensed for up to 50 workstations, enables you to monitor student progress and provide individual feedback. Included is a Teacher's Manual that gives full explanations along with suggestions for utilizing the APCD® in the classroom. More information, including free worksheets to accompany the APCD for Calculus AB, is available on AP Central. APCD CD-ROMs can be purchased through the College Board Store (store.collegeboard.com).

Funding Opportunities

College Board AP Fellows Program

The College Board AP Fellows program is an annual competitive grant program that provides scholarships for secondary school teachers planning to teach AP courses in schools that serve minority and/or low-income students who have been traditionally underrepresented in AP courses. The scholarships assist teachers with the cost of attending an AP Summer Institute. To qualify, a school must have approximately 50 percent or more traditionally underrepresented minority students (African American, Hispanic, or Native American), and/or 50 percent or more students whose average family income level is equivalent to or below the national annual average for a low-income family of four (approximately $36,000). The summer institutes provide an excellent opportunity for teachers to gain command of a specific AP subject and to receive up-to-date information on the latest curriculum changes. 2006 College Board Fellows will be offered a scholarship of $1,000 to attend a College Board–endorsed AP Summer Institute.

AP® Microeconomics
2005 Free-Response Questions
Form B

The College Board: Connecting Students to College Success

The College Board is a not-for-profit membership association whose mission is to connect students to college success and opportunity. Founded in 1900, the association is composed of more than 4,700 schools, colleges, universities, and other educational organizations. Each year, the College Board serves over three and a half million students and their parents, 23,000 high schools, and 3,500 colleges through major programs and services in college admissions, guidance, assessment, financial aid, enrollment, and teaching and learning. Among its best-known programs are the SAT®, the PSAT/NMSQT®, and the Advanced Placement Program® (AP®). The College Board is committed to the principles of excellence and equity, and that commitment is embodied in all of its programs, services, activities, and concerns.

Copyright © 2005 by College Board. All rights reserved. College Board, AP Central, APCD, Advanced Placement Program, AP, AP Vertical Teams, Pre-AP, SAT, and the acorn logo are registered trademarks of the College Entrance Examination Board. Admitted Class Evaluation Service, CollegeEd, Connect to college success, MyRoad, SAT Professional Development, SAT Readiness Program, and Setting the Cornerstones are trademarks owned by the College Entrance Examination Board. PSAT/NMSQT is a registered trademark of the College Entrance Examination Board and National Merit Scholarship Corporation. Other products and services may be trademarks of their respective owners. Permission to use copyrighted College Board materials may be requested online at: http://www.collegeboard.com/inquiry/cbpermit.html.

Visit the College Board on the Web: www.collegeboard.com.
AP Central is the official online home for the AP Program and Pre-AP: apcentral.collegeboard.com.

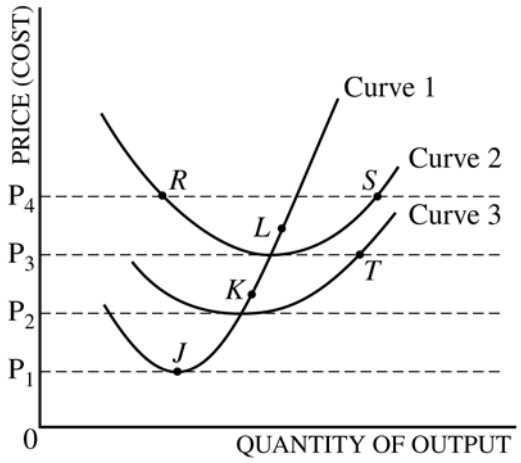
MICROECONOMICS
SECTION II
Planning time—10 minutes
Writing time—50 minutes

Directions: You have fifty minutes to answer all three of the following questions. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark-blue ink.

1. Petsall Corporation is a profit-maximizing monopolist. It sells a patented rabies vaccine for pets and earns economic profits.
   (a) Draw a correctly labeled graph that shows each of the following for Petsall.
      (i) Output and price of the vaccine
      (ii) Area of economic profits
   (b) Assume that Petsall hires its production workers in a perfectly competitive labor market at the wage rate of $20 per hour.
      (i) State the marginal conditions for hiring the profit-maximizing amount of labor.
      (ii) Draw a correctly labeled graph that shows the labor supply and demand curves for Petsall and indicate the profit-maximizing quantity of labor.
   (c) Suppose that the market wage rate now falls to $15 per hour. Show on your diagram in (b) (ii) how each of the following would be affected.
      (i) The supply of labor to Petsall
      (ii) The amount of labor Petsall would hire
   (d) Given the lower wage rate in (c), indicate how each of the following would change.
      (i) Total fixed cost
      (ii) Marginal cost
      (iii) Price of the product

Copyright © 2005 by College Entrance Examination Board. All rights reserved.
Visit apcentral.collegeboard.com (for AP professionals) and www.collegeboard.com/apstudents (for AP students and parents).

GO ON TO THE NEXT PAGE.



2. The graph above shows the short-run cost structure of a firm in a perfectly competitive industry.
   (a) Identify the cost curves that are denoted by each of the following labels.
      (i) Curve 1
      (ii) Curve 2
      (iii) Curve 3
   (b) Explain why curve 1 does each of the following as output increases.
      (i) Initially decreases
      (ii) Finally increases
   (c) What measure of cost is represented by the vertical distance between curve 2 and curve 3 ?
   (d) Explain why the vertical distance between curve 2 and curve 3 decreases as output increases.
   (e) Using the letters on the graph, identify two points on the firm's short-run supply curve.

Copyright © 2005 by College Entrance Examination Board. All rights reserved.
Visit apcentral.collegeboard.com (for AP professionals) and www.collegeboard.com/apstudents (for AP students and parents).

GO ON TO THE NEXT PAGE.

3. Assume that bread and butter are complementary goods. The government begins to subsidize the production of wheat, which is an input in the production of bread.

   (a) For each of the following markets, draw correctly labeled supply and demand graphs and show the effect of the subsidy on the equilibrium price and quantity in the short run.

      (i) The wheat market

      (ii) The bread market

      (iii) The butter market

   (b) If the demand for bread is price elastic**,** how will total revenues for the bread producers change as a result of the government subsidy?

END OF EXAMINATION

Copyright © 2005 by College Entrance Examination Board. All rights reserved.
Visit apcentral.collegeboard.com (for AP professionals) and www.collegeboard.com/apstudents (for AP students and parents).



AP® Microeconomics
2005 Scoring Guidelines
Form B

The College Board: Connecting Students to College Success

The College Board is a not-for-profit membership association whose mission is to connect students to college success and opportunity. Founded in 1900, the association is composed of more than 4,700 schools, colleges, universities, and other educational organizations. Each year, the College Board serves over three and a half million students and their parents, 23,000 high schools, and 3,500 colleges through major programs and services in college admissions, guidance, assessment, financial aid, enrollment, and teaching and learning. Among its best-known programs are the SAT®, the PSAT/NMSQT®, and the Advanced Placement Program® (AP®). The College Board is committed to the principles of excellence and equity, and that commitment is embodied in all of its programs, services, activities, and concerns.

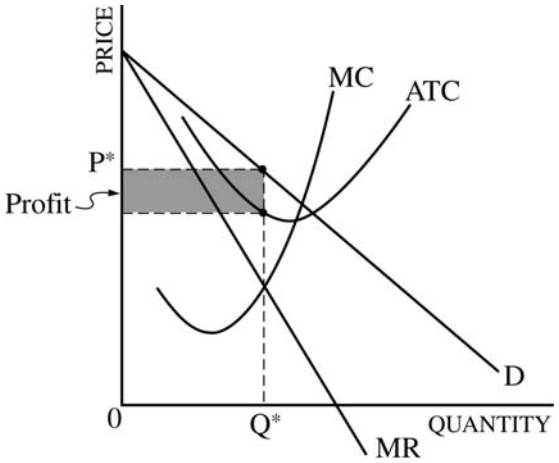
Copyright © 2005 by College Board. All rights reserved. College Board, AP Central, APCD, Advanced Placement Program, AP, AP Vertical Teams, Pre-AP, SAT, and the acorn logo are registered trademarks of the College Entrance Examination Board. Admitted Class Evaluation Service, CollegeEd, Connect to college success, MyRoad, SAT Professional Development, SAT Readiness Program, and Setting the Cornerstones are trademarks owned by the College Entrance Examination Board. PSAT/NMSQT is a registered trademark of the College Entrance Examination Board and National Merit Scholarship Corporation. Other products and services may be trademarks of their respective owners. Permission to use copyrighted College Board materials may be requested online at: http://www.collegeboard.com/inquiry/cbpermit.html.

Visit the College Board on the Web: www.collegeboard.com.
AP Central is the official online home for the AP Program and Pre-AP: apcentral.collegeboard.com.

AP® MICROECONOMICS
2005 SCORING GUIDELINES (Form B)

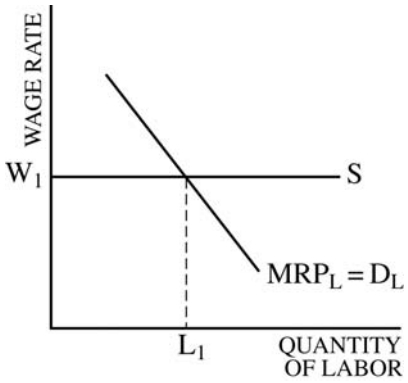
Question 1

13 points (4 + 4 + 2 + 3)



(a) 4 points:

- One point is earned for a graph with downward sloping demand curve with MR below.
- One point is earned for showing output at MR=MC.
- One point is earned for showing price on the demand curve above MR=MC.
- One point is earned for showing the area of profit, shaded or labeled.



(b) 4 points:

- One point is earned for stating that MRP=MFC or MRP=Wage or MRP=MRC.
- One point is earned for drawing a correct graph with downward sloping labor-demand curve.
- One point is earned for drawing a horizontal labor-supply curve at the wage rate.
- One point is earned for indicating the profit-maximizing quantity of labor.

(c) 2 points:

- One point is earned for showing that labor-supply curve shifts down.
- One point is earned for showing that the amount of labor hired increases.

Copyright © 2005 by College Board. All rights reserved.
Visit apcentral.collegeboard.com (for AP professionals) and www.collegeboard.com/apstudents (for AP students and parents).

Question 1 (continued)

(d) 3 points:

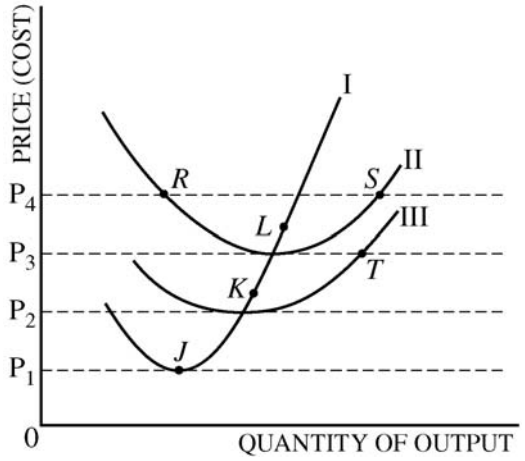
- One point is earned for indicating that the total fixed cost would not change.
- One point is earned for indicating that the marginal cost would fall.
- One point is earned for indicating that the product price would fall.

Copyright © 2005 by College Board. All rights reserved.
Visit apcentral.collegeboard.com (for AP professionals) and www.collegeboard.com/apstudents (for AP students and parents).

AP® MICROECONOMICS
2005 SCORING GUIDELINES (Form B)

Question 2

8 points (3 + 2 + 1 + 1 + 1)



(a) 3 points:
- One point is earned for identifying curve I as marginal cost (MC).
- One point is earned for identifying curve II as average total cost (ATC).
- One point is earned for identifying curve III as average variable cost (AVC).

(b) 2 points:
- One point is earned for a correct explanation for (i): increasing marginal returns or increasing marginal product (productivity) or increasing returns or specialization.
- One point is earned for a correct explanation for (ii): decreasing marginal returns (productivity) or (the law of) diminishing marginal returns or sharing of fixed inputs.

(c) 1 point:
- One point is earned for identifying the average fixed cost.

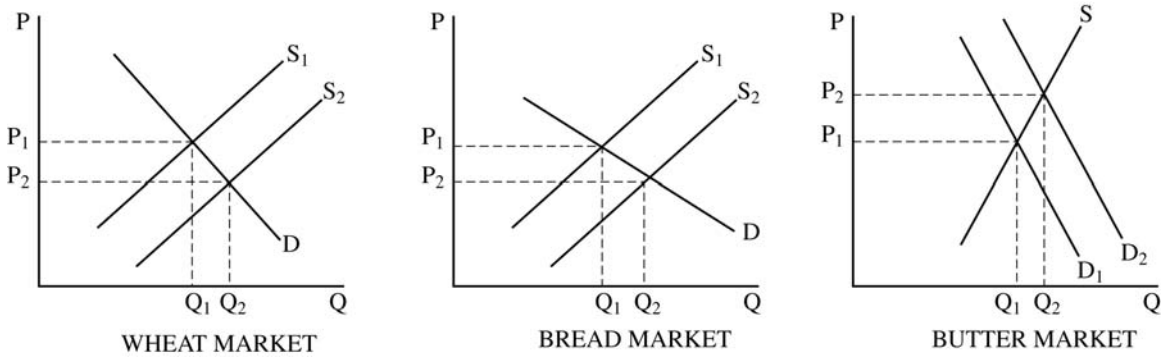
(d) 1 point:
- One point is earned for stating that the fixed cost is spread over larger quantity, so AFC decreases.

(e) 1 point:
- One point is earned for identifying K and L.

Copyright © 2005 by College Board. All rights reserved.
Visit apcentral.collegeboard.com (for AP professionals) and www.collegeboard.com/apstudents (for AP students and parents).

Question 3

5 points (4 + 1)



(a) 4 points:

- One point is earned for correctly labeled supply and demand graphs for all three markets.
- One point is earned for showing a rightward shift of the supply curve in the wheat market with price decreasing and quantity increasing.
- One point is earned for showing a rightward shift of the supply curve in the bread market with price decreasing and quantity increasing.
- One point is earned for showing a rightward shift of the demand curve in the butter market with price increasing and quantity increasing.

(b) 1 point:

- One point is earned for concluding that the total revenue will increase.

Copyright © 2005 by College Board. All rights reserved.
Visit apcentral.collegeboard.com (for AP professionals) and www.collegeboard.com/apstudents (for AP students and parents).

关注"PalmDrive Academy"公众号
获取最新资讯

添加"PalmDrive Academy"小助手
咨询课程详情