

# ap calculus 2006 2007 professional development workshop materials exam resources and program information

## collegeboard advanced placement program

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### Introduction

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For high school mathematics teachers, the Advanced Placement (AP) Calculus program is more than a set of exams – it is a gateway to college level rigor, a benchmark for instructional quality, and a source of professional growth. While the College Board continually updates its curriculum and assessment design, many educators still look back to the 2006 2007 AP Calculus cycle to understand how the program evolved, to gather workshop materials that remain relevant, and to find exam resources that align with today's learning objectives. This article offers a deep dive into the 2006 and 2007 AP Calculus professional development workshops, the materials and exam resources available at that time, and how the College Board's Advanced Placement program has continued to shape calculus instruction. Whether you are preparing for a new teaching cohort or revisiting past best practices, the insights below will help you navigate the legacy of the 2006 2007 cycle while staying aligned with current standards.

### Understanding the AP Calculus Program

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The AP Calculus program, offered by the College Board, is divided into two primary courses: **AP Calculus AB** and **AP Calculus BC**. AB covers differential and integral calculus, while BC extends to the full breadth of a college level calculus sequence, including additional topics such as power series and parametric equations. Both courses culminate in a rigorous exam that assesses conceptual understanding, problem solving skills, and the ability to apply calculus to real world scenarios.

Beyond the exams, the College Board provides a comprehensive curriculum framework, instructional guides, and professional development resources. The 2006 2007 cycle was a pivotal period in the program's history, marking a transition toward greater emphasis on mathematical modeling and interdisciplinary applications. The professional development workshops that year reflected these priorities, offering teachers hands on strategies for integrating technology, fostering student inquiry, and aligning assessment with the updated curriculum.

### 2006 2007: A Snapshot of the AP Calculus Landscape

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#### Curriculum Evolution

During the 2006 2007 academic year, the AP Calculus curriculum was undergoing significant refinement. The College Board introduced new content areas that highlighted the role of calculus in modeling real world phenomena. Key changes included a stronger focus on differential equations, a more explicit connection between limits and continuity, and the incorporation of additional practice problems that emphasized application over rote computation.

#### Professional Development Workshops

Professional development (PD) workshops were a cornerstone of the 2006 2007 cycle. These workshops, typically

held in the summer before the school year, were designed to equip teachers with the tools to deliver the updated curriculum effectively. Common themes included:

- Interactive problem solving sessions that encouraged student collaboration.
- Use of graphing calculators and early computer algebra systems.
- Strategies for assessing conceptual understanding through formative assessment.
- Techniques for integrating real world data into calculus lessons.
- Guidelines for preparing students for the AP Calculus exam format.

Many teachers still refer back to these workshops, citing their hands on approach and the depth of content coverage. The materials produced during these PD sessions—lesson plans, assessment rubrics, and student work samples—remain valuable resources for educators seeking to deepen their calculus instruction.

## **Workshop Materials: What Teachers Got**

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### **Lesson Plans and Modules**

Workshop materials typically included detailed lesson plans that aligned with the 2006–2007 curriculum framework. These plans were organized into units, each covering a major topic such as limits, derivatives, integrals, and applications. The lesson plans featured:

- Clear learning objectives aligned with AP standards.
- Step by step instructional sequences.
- Suggested student activities and group work.
- Assessment checkpoints to gauge understanding.
- Extensions for advanced learners.

### **Assessment Rubrics and Sample Exams**

Assessment rubrics were a critical component of the PD materials. They provided teachers with a structured approach to grading both multiple choice and free response sections of the AP exam. Sample exams from the 2006–2007 cycle were also distributed, giving teachers insight into the types of problems students were expected to solve.

### **Technology Integration Guides**

Recognizing the growing role of technology in mathematics education, the 2006–2007 workshops included guides for using graphing calculators (TI-83/84, Casio fx series) and early versions of computer algebra systems (Wolfram Alpha, Maple). These guides helped teachers:

- Set up calculators for class use.
- Design activities that required students to plot functions or explore parameter changes.
- Incorporate technology into assessment.

### **Professional Development Workshops: Formats and Delivery**

The workshops varied in format—from intensive, week long sessions to shorter, topic focused seminars. Common delivery methods included:

- Interactive workshops with hands on activities.
- Peer learning circles where teachers shared best practices.
- Online modules for teachers who could not attend in person.
- Follow up webinars to reinforce key concepts.

## Exam Resources from 2006 2007

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### Past Exam Papers

Exam resources are invaluable for both teachers and students. The 2006 2007 cycle included a set of past AP Calculus exams, each accompanied by answer keys and scoring guidelines. These exams helped teachers:

- Identify common student misconceptions.
- Align classroom practice with exam expectations.
- Develop targeted review sessions.

### Study Guides and Review Books

Study guides from the 2006 2007 cycle were designed to complement classroom instruction. They typically contained:

- Summaries of key concepts.
- Worked examples and practice problems.
- Strategies for tackling multiple choice and free response questions.
- Tips for time management during the exam.

### Online Resources

Even in 2006 2007, the College Board began expanding its online presence. Teachers and students could access:

- Digital copies of past exams.
- Interactive practice tools.
- Instructional videos and tutorials.

## College Board Advanced Placement Program: Key Features

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### Curriculum Framework

The College Board's AP Calculus curriculum framework is a living document that outlines the scope and sequence of topics, the depth of understanding required, and the skills students must develop. The 2006 2007 framework emphasized:

- Conceptual understanding of limits and continuity.
- Application of derivatives to optimization and related rates.
- Integration techniques for area, volume, and arc length.
- Use of calculus in real world contexts.

### Assessment Design

AP Calculus assessments are divided into two sections:

1. Section I: Multiple Choice (60 minutes) – 45 questions covering all topics.
2. Section II: Free Response (60 minutes) – 5 questions requiring detailed solutions.

Exam design focuses on evaluating both procedural fluency and conceptual depth. The 2006 2007 cycle introduced new question types that required students to interpret data, analyze graphs, and apply calculus concepts to unfamiliar situations.

### Scoring and College Credit

Scores range from 1 to 5, with a 3 typically considered passing. Many universities award credit or placement based on a score of 3 or higher. The College Board also provides detailed scoring rubrics for free response items,

ensuring consistency across graders.

## How to Leverage 2006 2007 Materials Today

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### Integrating Legacy Resources with Current Standards

While the 2006 2007 materials were designed for a slightly different curriculum, many concepts remain timeless. Teachers can:

- Use past exam questions to build practice banks.
- Adapt lesson plans to meet the Common Core or Next Generation Science Standards.
- Incorporate technology updates (e.g., Desmos, GeoGebra) into old activities.

### Professional Development for New Teachers

New educators can benefit from the PD workshop materials by:

- Studying the instructional strategies outlined in the original workshops.
- Observing how teachers handled classroom dynamics in the 2006 2007 context.
- Adapting these strategies to contemporary classroom environments.

### Preparing Students for the Modern AP Exam

Even though the exam format has evolved, the core skills tested remain consistent. Teachers can:

- Use past exams to identify persistent misconceptions.
- Create mock exams that mirror the structure and difficulty of current tests.
- Teach test taking strategies such as time management and question prioritization.

## Tips for Maximizing Your AP Calculus Instruction

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### Build a Strong Conceptual Foundation

Students often struggle with the abstract nature of calculus. Emphasize:

- Visual representations of limits and derivatives.
- Real world applications to solidify understanding.
- Conceptual questions that require explanation rather than calculation.

### Encourage Collaborative Problem Solving

Group work fosters deeper engagement. Strategies include:

- Problem solving circles where each student presents a different approach.
- Peer review of free response solutions.
- Use of technology to facilitate collaborative exploration.

### Use Technology Wisely

Modern tools can enhance learning:

- Graphing calculators for dynamic visualizations.
- Online platforms like Khan Academy for supplemental practice.
- Data analysis tools for modeling real world scenarios.

### Provide Targeted Feedback

Feedback should be timely and specific:

- Highlight strengths and areas for improvement.
- Use rubrics to explain grading criteria.
- Offer opportunities for revision and resubmission.

### Align Practice with Exam Expectations

Regularly incorporate practice exams and review sessions to:

- Familiarize students with exam structure.
- Build test taking stamina.
- Identify gaps in knowledge early.

## Program Information for Administrators

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### Implementing the AP Calculus Program

School administrators play a pivotal role in ensuring program success:

- Provide professional development funding and time.
- Encourage collaboration among math teachers.
- Monitor student progress through AP exam data.
- Celebrate achievements to motivate teachers and students.

### Assessing Program Impact

Use the following metrics to evaluate program effectiveness:

- AP exam pass rates.
- College credit acquisition.
- Student enrollment in advanced math courses.
- Teacher satisfaction and retention.

### Continuing Professional Growth

Encourage teachers to pursue ongoing PD:

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