



Achieve, Inc.

American Diploma Project Network

*Establishing Validity on the
Achieve American Diploma Project
Algebra II Exam*

September 25-26, 2008

NCIEA



Who is Achieve, Inc.?

Created by the nation's governors and business leaders, Achieve, Inc., is a bipartisan non-profit organization that helps states raise academic standards, improve assessments and strengthen accountability to prepare all young people for postsecondary education and training, careers, and citizenship.

American Diploma Project

- The American Diploma Project (ADP) was created to ensure all graduates leave high school ready for college and careers.
- Early research by ADP sought to identify “must-have” knowledge and skills graduates will need to be successful in college and the workplace.

The ADP Benchmarks: Challenging content for all students

To cover the content in the ADP benchmarks, high school graduates need:

■ In Mathematics:

- A rigorous four-year course sequence
- Content* equivalent to a sequence that includes Algebra I and II, Geometry, and Data Analysis & Statistics

**can be taught via different pathways*

■ In English:

- Four courses
- Content equivalent to four years of grade-level English or higher with a strong focus on oral and written communication skills and considerable research and analysis

ADP Policy Agenda

- Align high school standards with college and career expectations.
- Require all students to take curriculum aligned with standards.
- **Include “college-ready” tests, aligned with state standards, in high school assessment system.**
- Hold high schools accountable for graduating students college- and career-ready, and hold postsecondary institutions accountable for student success.

ADP Algebra II End-of-Course Exam

In 2005, ADP states began to explore possibility of collaborating on common assessment goals:

- To measure “college-ready” content
- To ensure consistent content and rigor in Algebra II courses within and among states
- To enable comparisons in performance among the states
- To reduce test development costs by working together
- ***To be considered for postsecondary placement purposes***

Exam Core Content

Operations on Numbers and Expressions

- Real numbers
- Complex numbers
- Algebraic expressions

Equations and Inequalities

- Linear equations and inequalities
- Nonlinear equations and inequalities

Polynomial and Rational Functions

- Quadratic functions
- Higher-order polynomial and rational functions

Exponential functions

- Exponential functions

Function Operations and Inverses

- Function operations and composition
- Inverse functions
- Piecewise functions



Exam Core Design

- 57 operational items
- Two untimed sessions (approximately 90 minutes each)
- One with calculator/one without
- Multiple choice, short answer & extended response items
- At least 30% of points from non-multiple choice items
- Paper & Pencil/Online format
 - Spring 2008 Paper & Pencil format only

Algebra II Exam: Modules to extend rigor and scope

Items for modules have been created and field tested, but at this time, no state has opted to purchase them.

■ Content:

- Data & Statistics
- Probability
- Trigonometric Functions
- Logarithmic Functions
- Matrices
- Conic Sections
- Sequences & Series

■ Design:

- 8 items each
- 20-25 minute session
- All with calculator
- Multiple choice, short answer & extended response items
- 30% of points from non-multiple choice items
- Paper & Pencil/Online format

Algebra II Exam: Milestones

- First Operational Pencil & Paper: Spring 2008
- First Operational Online: Winter 2008/09
- Validity and Research Studies with Colleges and Universities: Fall 2008 and Winter 2009
- Standard Setting: Summer 2009

Validity Overview

- Content Validity
- Procedural Validity
- Alignment Evidence
- **College Readiness Evidence-Predictive Validity & Concurrent Validity**
- **Standard Setting**
- Reporting
- Consequential Validity

College Readiness

- College Readiness Evidence
 - Concurrent Validity
 - ◆ What is the relationship between Algebra II and other “known” tests (ACT, SAT, placement tests . . .)?
 - Predictive Validity (Cross-sectional now then longitudinal as a cohort reaches college)
 - ◆ What is the relationship between Algebra II and success on the first semester credit-bearing college course?
 - Expert Judgment
 - ◆ Where do College Professors that teach first semester credit-bearing courses believe the readiness cut should be?

Standard Setting

- Different Approach for College Readiness
 - ◆ Empirical validity evidence will inform standard setting (based on studies previously described)
 - ◆ The consortium of states, National Education Leaders, and Achieve will serve as the “Board” to review the evidence and recommend cut scores. They will use the Briefing Book approach.
 - ◆ The PLD will have two components: an empirical basis based on probability of success in college and descriptions of the type of skills that students demonstrate at each level.

More Information

For more information on Achieve,
please visit Achieve, Inc., on the Web at
<http://www.achieve.org>

For more information on ADP Algebra II End-of-
Course Exam,
please visit Achieve, Inc., on the Web at
<http://www.achieve.org/AlgebraIIExamOverview>

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