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Preparing Today's High School Students for Tomorrow's Opportunities

# American Diploma Project Algebra I \& II End-of-Course Exams 

## Background

To make college and career readiness a priority in the states, Achieve in 2005 launched the American Diploma Project (ADP) Network. Starting with only a handful of states, the Network now has 35 states educating nearly 85 percent of all U.S. public school students. Through the ADP Network, governors, state education officials, postsecondary leaders, business executives and other supporters work together to improve postsecondary preparation by aligning high school standards, assessments, graduation requirements and accountability systems with the demands of college and careers.

As states began work on the ADP agenda, they soon realized they would need new assessments to match their raised expectations. To that end, the chief state school officers in a number of ADP states formed the ADP Assessment Consortium to create a rigorous college-ready Algebra II end-of-course exam. The exam would serve multiple purposes including improving curriculum and instruction to ensure a consistent level of content and rigor in Algebra II courses, to help colleges determine if students are ready for credit-bearing work and, eventually, to compare performance and progress among the participating states in the ADP Assessment Consortium. Consortium members, with the state of Ohio serving as the procurement lead, awarded to

Pearson the contract to develop and administer the ADP Algebra II End-of-Course Exam. Pearson was also tasked with developing an aligned ADP Algebra I End-of-Course Exam.

Purchases of the ADP Algebra Il exam have grown from almost 114,000 in its first administration in the spring of 2008 to over 132,000 in the spring of 2009. ADP Assessment Consortium states purchased almost 41,000 Algebra I exams during its first administration in the spring of 2009. Subsequent administrations will take place in the fall and spring every year.

Currently, the ADP Assessment Consortium has fifteen state participants - Arkansas, Arizona, Florida, Hawaii, Indiana, Kentucky, Maryland, Massachusetts, Minnesota, New Jersey, North Carolina, Ohio, Pennsylvania, Rhode Island and Washington. All ADP network states are welcome to join. The Consortium represents the largest multi-state collaborative assessment effort ever undertaken. It is a dramatic departure from past testing practices in which states developed their own exams, based on their own standards and often at considerable individual state expense. With increasingly common college and career ready end of high school expectations among the states, a collaborative effort to develop assessments makes good policy-and fiscal-sense.


Algebra II Exam Purpose
The ADP ${ }^{\text {SM }}$ Algebra II End-of-Course Exam serves three main purposes:

1. To improve curriculum and instructionand ensure consistency across states. The test will help classroom teachers focus on the most important concepts and skills in Algebra II and identify areas where the curriculum needs to be strengthened.
2. To help colleges determine if students are ready to do credit-bearing work. Because the test is aligned with the ADP mathematics benchmarks, it will measure skills students need to enter and succeed in first-year, credit-bearing mathematics courses. Postsecondary institutions will be able to use the results of the test to tell high school students whether they are ready for college-level work, or if they have content and skill gaps that need to be filled before they enroll in college. This information should help high schools better prepare their students for college, and reduce the need for colleges to provide costly remediation courses.
3. To compare performance and progress among the participating states. Having agreed on the core content expectations of Algebra II, states are interested in tracking student performance over time. Achieve will issue a report each year comparing performance and progress among the participating states. This report will help state education leaders, educators and the public assess performance, identify areas for improvement and evaluate the impact of state strategies for improving secondary math achievement.

## Algebra II End-of-Course Exam

## Exam Content

The ADP Algebra II End-of-Course Exam consists of algebraic topics which will be taken by students across all participating states. This core covers a range of algebraic topics that are typically taught in an Algebra II course and fall into five content standards:

1) Operations on Numbers and Expressions
2) Equations and Inequalities
3) Polynomial and Rational Functions
4) Exponential Functions, and
5) Function Operations and Inverses.

## Exam Format

Item Types:

Times: Two untimed testing sessions expected to take approximately 90 minutes each; one with a calculator and one without

Medium:
Testing Windows:
Fall Administration - December 1-14, 2009
January 11-22, 2010
Spring Administration -
May 5 - June 2, 2010

## Modules

In addition to the core algebraic content described above, seven modules will be available to states to enrich the core with content that is important to colleges and employers alike. These include:

1) Data and Statistics
2) Probability
3) Logarithmic Functions
4) Trigonometric Functions
5) Matrices
6) Conic Sections
7) Sequences and Series

## Algebra I End-of-Course Exam

## Exam Content

The ADP Algebra I End-of-Course Exam consists of algebraic topics which will be taken by students across all participating states. These topics typically are taught in an Algebra I course and fall into four content standards:

1) Operations on Numbers and Expressions
2) Linear Relationships
3) Non-linear Relationships, and
4) Data, Statistics and Probability.

## Exam Format

Item Types:

Times:

Medium:
Testing Window:

Operational Core Test: 47 test questions
40 multiple-choice (1 point each)
5 short-answer (2 points each)
2 extended-response (4 points each)
Approximately $30 \%$ of the score will be based on the short-answer and extended-response

Additional field-test items are embedded in the operational exam but do not count towards the student score

Two untimed testing sessions expected to take 60 minutes each; one with a calculator and one without

Paper and Pencil Testing
Fall Administration -
December 1-14, 2009
January 11-22, 2010
Spring Administration -
May 5 - June 2, 2010


## Agebral Exam Purpose

As an extension of the ADP ${ }^{\text {SM }}$ Algebra II End-of-Course Exam, the ADP Algebra I End-of-Course Exam serves similar, parallel purposes:

1. To improve curriculum and instruction. The exam will help classroom teachers focus on the most important concepts and skills in an Algebra I, or equivalent, class and identify areas where the curriculum needs to be strengthened. For schools administering both exams, the Algebra I Exam will complement the Algebra II Exam and will help ensure a compatible, consistent and well-aligned Algebra curriculum. Once standards are set, teachers will get test results back quickly with sufficient time to make the necessary adjustments for the next year's course.
2. To help high schools determine if students are ready for rigorous higher level mathematics courses. Because the test is aligned with the ADP mathematics benchmarks, it will measure skills students need to succeed in upper level mathematics courses, including Algebra II.
3. To compare performance and progress among the participating states. Having agreed on the content expectations for courses at the Algebra I level, states are interested in tracking student performance over time and comparing results with one another.

## Why Algebra II?

Mastery of Algebra II (or an integrated course covering the same content) is important for all high school graduates. Why does Algebra II matter?

- Algebra ll fosters problem solving, abstract reasoning and critical thinking skills that are used long after the course ends.
- Algebra II and other higher level math classes improve access to postsecondary education. Algebra II includes the advanced content that faculty at twoand four-year institutions say is critical for success in credit-bearing mathematics college coursework.
- Students who study mathematics at least through Algebra II in high school are more than twice as likely as those who do not to earn a four-year degree, and the level of math a student reaches in high school is the most accurate predictor of whether that student will earn a Bachelor's degree.
- Incontrast, students who havenotmastered Algebra II in high school are more likely to need remediation and, therefore, less likely to complete a college degree.


## Why an end-of-course exam?

End-of-courseexams areattractive with states because they align directly to curriculum standards and courses students need to take for graduation. End-of-course exams are also more sensitive to instruction than are gradelevel survey exams because they are taken right after a student has completed a course and can provide teachers with relevant information about students’ understanding of the content, enabling teachers to adjust instruction for subsequent classes accordingly. In addition, end-of-course tests serve as a way to ensure consistency and rigor in classrooms within and across states, so that all students are exposed to a rigorous curriculum. The ADP Algebra II End-of-Course Exam serves as both a means to ensure consistency of rigor as the number of students enrolled in the course grows, while simultaneously offering students a signal of readiness that can be valued and utilized by postsecondary institutions.


