



Achieve

**American Diploma Project  
Algebra II End-of-Course Exam  
Fact Sheet**

### **Background**

The American Diploma Project (ADP) Network includes 35 states that are dedicated to making sure every high school graduate is prepared for college or a career. Together, Network members are responsible for educating nearly 85% of all U.S. public school students. In each state, governors, state superintendents of education, business executives, and college and university leaders are working to restore value to the high school diploma by raising the rigor of the high school standards, assessments and curriculum and better aligning these expectations with the demands of postsecondary education and the workforce.

In May 2005, leaders from the ADP Network States began to explore the possibility of working together, with support from Achieve, to develop a common end-of-course exam in Algebra II. These states were planning to require or strongly encourage students to take Algebra II, or its equivalent, in order to better prepare them for college and careers, as Algebra II, or its equivalent, is a gateway course for higher education and teaches quantitative reasoning skills important for the workplace. State leaders recognized that using an end-of-course exam would help ensure a consistent level of content and rigor in classes within and across their respective states. They also understood the value of working collaboratively on a common test: the potential to create a high quality test faster and at lower cost to each state, and to compare their performance and progress with one another.

### **Contract Awarded**

In the fall of 2005, nine ADP states—**Arkansas, Indiana, Kentucky, Maryland, Massachusetts, New Jersey, Ohio, Pennsylvania and Rhode Island**—came together to reach consensus on the exam purposes, content, format and other characteristics. In summer 2006 the nine states, under Ohio’s auspices, issued a Request for Proposals for the development, scoring and reporting of the ADP Algebra II End-of-Course (EOC) Exam. In March 2007, the contract was awarded to Pearson Education Measurement who developed the test to meet the specifications agreed upon by the participating states. Since awarding the contract, six additional states —**Arizona, Florida, Hawaii, Minnesota, North Carolina, and Washington**—have joined the partnership, bringing the total number of participating states to fifteen.

### **Exam Purposes**

The ADP Algebra II EOC Exam will serve three main purposes:

1. *To improve curriculum and instruction—and ensure consistency within and across states.* The exam 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. After the standards are set in the summer of 2009, teachers will

get test results back within three weeks of when the exam is administered, which will provide sufficient time to make the necessary adjustments for the next year's course.

2. ***To help colleges determine if students are ready to do credit-bearing mathematics work.*** Because the exam 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 Exam 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 mathematics achievement.

### **Exam Content and Format: Core Exam**

The Exam will consist of a common core, which will be taken by students across all participating states. In addition to the core algebraic content, seven optional modules will be available to states to enrich the core with content that is important to colleges. The content in the core and the modules is described below.

#### **Core Exam**

##### **Content:**

The core ADP Algebra II EOC Exam will cover a range of algebraic topics that are typically taught in an Algebra II course. These include: 1) Operations on Numbers and Expressions 2) Equations and Inequalities 3) Polynomial and Rational Functions 4) Exponential Functions 5) Function Operations and Inverses. Successful students will be able to:

- demonstrate an understanding of operations with numbers and algebraic expressions, involving real and complex numbers
- solve linear and nonlinear equations and inequalities and systems of linear equations and inequalities. Student expectations with respect to linear, quadratic, exponential, rational, radical, and higher-order polynomial equations and inequalities will include solving, translating among multiple representations, and modeling and solving problems presented in context

- represent, determine the key characteristics of, and solve problems that involve quadratic functions and higher-order polynomial and simple rational functions
- represent, determine the key characteristics of, and solve problems involving exponential functions. (Students should be able to use the definition of logarithms and its relationship to exponents to solve such problems.)
- demonstrate an understanding of combinations and inverses of functions

**Number of Items:** 55 operational items

**Item Types:** 46 multiple-choice (1 point each), 6 short answer (2 points each), and 3 extended response (4 points each)

At least 30% of the student's score will be based on the short-answer and extended-response items.

**Times:** Although untimed, two testing sessions approximately 90 minutes in length are recommended; one session with a calculator and one without

**Medium:** Paper and Pencil Testing  
Online Testing

**Optional Modules**

**Content:** The optional modules include: 1) Data and Statistics 2) Probability 3) Logarithmic Functions 4) Trigonometric Functions 5) Matrices 6) Conic Sections 7) Sequences and Series.

**Number of Items:** 8 items per module

**Item Types:** 6 multiple-choice (1 point each), 1 short answer (2 points), and 1 extended response (4 points)

At least 30% of the student's score will be based on the short answer and extended response items.

**Times:** Although untimed, one testing sessions approximately 30 minutes in length per module is recommended; calculators allowed

**Medium:** Paper and Pencil Testing  
Online Testing

### **Item Development**

The test items for the ADP Algebra II EOC Exam are being developed by Pearson. Each item will be reviewed by postsecondary mathematics faculty and mathematics teachers from the participating states. The items are aligned with the content specifications that were developed by a committee of representatives from each of the original nine states, which in turn are aligned with Achieve's ADP mathematics benchmarks. To view the ADP Algebra II End-of-Course Exam Content Standards, please visit <http://www.achieve.org/ADPAssessmentConsortium>.

### **Performance Levels**

Across the states, the Exam will be scored using a set of common performance levels, which will be determined by the participating states in conjunction with Achieve after the Spring 2009 administration. This will help ensure consistency of expectations regardless of where a student attends school.

### **Testing Windows**

2009 End-of-Winter Testing: December 8-19, 2008 and January 12-23, 2009  
2009 End-of-Spring Testing: May 1-June 12, 2009

### **How States Will Use the Exam**

All participating states view the Exam as an opportunity to improve mathematics instruction and curriculum and to provide teachers and students with the tools they need to be successful. However, each participating state will determine how it will use the ADP Algebra II EOC Exam. In some states, all students who take Algebra II will be required to take the Exam. In other states, decisions about the Exam will be left up to districts, some of which may require students to take the Exam as part of an Algebra II course or its equivalent. Lastly, some states have made the exam a part of state-wide initiatives. Over time, all states hope their postsecondary institutions will accept the Algebra II EOC Exam as an indicator of students' readiness for the first college level credit-bearing mathematics course.

### **Beyond the Algebra II EOC Exam**

The states will are also considering additional ways in which they can work together to provide their schools with tools and strategies necessary to improve secondary mathematics achievement – such as curriculum, instructional strategies, formative assessments, professional development, and support for students. A subset of states have already decided to work collaboratively to develop an additional EOC Exam for Algebra I, with the possibility of Geometry and other courses being developed later. To view the ADP Algebra I End-of-Course Exam Content Standards, please visit <http://www.achieve.org/ADPAssessmentConsortium>.

### **Joining the ADP Algebra II Consortium**

Additional states that want to use this exam *and* participate in the broader mathematics consortium – including comparative reporting of performance and progress and working with other states to improve secondary mathematics – can do so at any time. For further information contact Tracy Halka at Achieve, [thalka@achieve.org](mailto:thalka@achieve.org) or (202) 419-1575.