



## Online Testing and Assessment

Maple T.A.™ is a powerful online testing and assessment system designed especially for courses involving mathematics. Its unparalleled abilities allow instructors to truly assess student understanding of math-based concepts, making it ideal for science, technology, engineering, and mathematics (STEM) courses. Compatible with virtually any course management environment, Maple T.A. can be seamlessly integrated into your online learning infrastructure. It also supports mobile strategies in education by allowing students to access their tests and assignments from tablet devices.

- **Designed especially for courses involving mathematics**

Science, technology, engineering, and mathematics (STEM) courses have their own requirements when it comes to automated assessment, and Maple T.A. was designed specifically to meet those needs. Offering standard math notation, sophisticated plotting, free-response math questions, intelligent grading of responses, and more, Maple T.A. provides everything you need to take full advantage of automated assessment in your math-based courses.

- **Compatible with virtually any online course management environment**

From augmenting a standard course management system to providing automated assessment for a custom-built MOOC, Maple T.A. can be seamlessly integrated into all your online offerings. Maple T.A. can be integrated with Blackboard®, Moodle™, Brightspace™ by D2L™, and more, offering single sign-on, a consolidated gradebook, and easy access to all student assignments regardless of where they were created.

- **Mobile-accessible**

Today's students expect mobile access to all their course materials, including tests and assignments. Whether you are developing a full mobile strategy or simply giving students a way to do homework from the campus coffee shop, Maple T.A. provides a tablet-compatible assessment environment that works with iPad®, Android™ tablets, and more.

### Designed for Math-Based Assessment

- Full support for standard math notation
- Free-response and open-ended questions
- Intelligent grading of mathematical responses
  - Capable of respecting mathematical equivalence, when desired. For example, if the correct answer is  $\frac{(2y+2x+1)}{2}$ , Maple T.A. can also accept  $x+y+\frac{1}{2}$ , and if the answer is  $1-\sin(x)^2$ , Maple T.A. can also accept  $\cos^2(x)$ . Alternatively, you can require responses to be in a particular form.
  - Handles questions with infinitely many correct answers, such as "Give an example of a function that has a maximum at  $x = 0$ ," "List three composite numbers that have no factors in common," or "Give an example of an invertible matrix."
- Sophisticated visualization tools
- Access to the mathematical power of Maple™, supporting virtually any area of mathematics



## Features

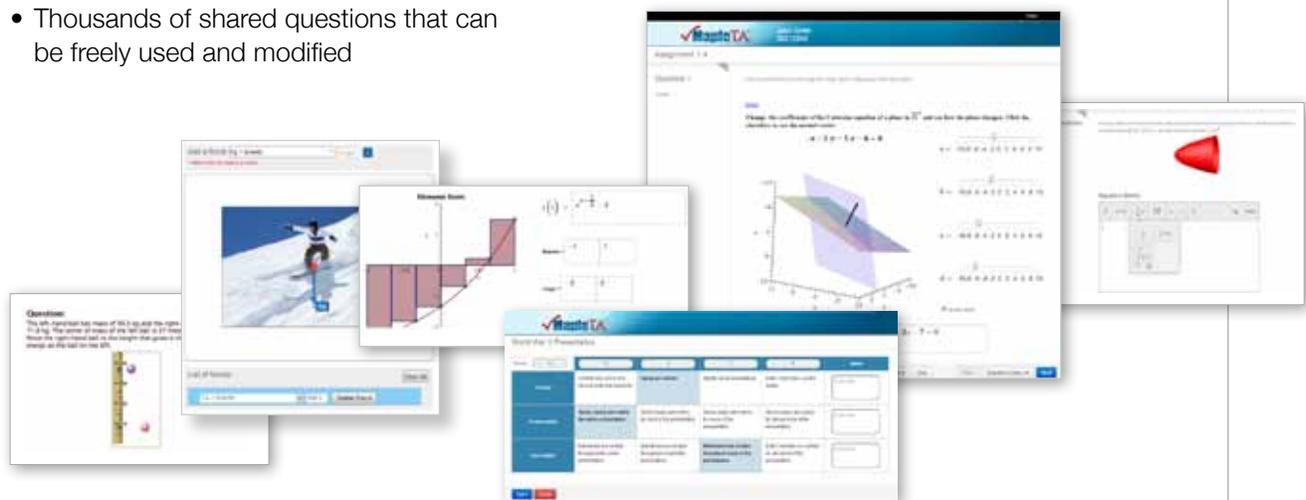
In addition to all the features that make it ideal for math-based testing, Maple T.A. has everything you demand from a premier testing and assessment system.

### For Instructors and Students

- Many question types for both technical and non-technical subjects
  - Mathematical free response
  - Multiple choice
  - Graph sketching
  - Fill-in-the-blank
  - Free-body diagrams
  - Interactive Math Apps
  - Numeric response within margin of error
  - Essay
  - And more!
- Powerful algorithmically generated questions that turn one question into hundreds
- Flexible partial grading
- Full-featured gradebook, including reports and analytical tools
- Adaptive assignments and questions
- Flexible assignment properties
- International language support
- Accessible via standard web browsers from computers and tablets, including iPad, Android tablets, and more
- Most comprehensive, easiest-to-use authoring tools for math-based content
- Thousands of shared questions that can be freely used and modified

### For Administrators

- Maplesoft-hosted or school-hosted server
- Scalable, from small classes to MOOCs with up to a million users
- Customizable interface
- Advanced security features
- Connectivity features and add-ons for easy integration with course management systems:
  - Blackboard
  - Moodle
  - Brightspace by D2L
- Web services API for integration with virtually any online course environment, including custom solutions
- Integration offers seamless experience for students and instructors
  - Single sign-on authentication
  - Consolidated gradebook
  - Easy student access to all assignments from a single location
- Authentication via LDAP for integration with campus databases



## Customer Experiences

### Reduce Grading Budget

#### University of Waterloo

- Growing class sizes and shrinking budgets meant it was becoming difficult to offer as many assignments as the instructors felt was needed to support learning
- University chose Maple T.A. to automate the process so the quality of instruction and learning could be maintained
- Used by 9000 students/year in 40 different courses
- Teaching assistants now have time to give more feedback on challenging written assignments
- **University saved \$100,000/year on their grading budget**

“...after moving to Maple T.A., we’ve found we can save approximately \$100,000 per year on our grading budget...”

Carrie Howells, University of Waterloo, Canada



### Increase Pass Rates

#### Amsterdam University of Applied Sciences

- Low pass rates were a concern
- Online learning and digital testing a key pillar to new approach
- Delivered online assignments, homework, and tests using Maple T.A.
- Used results to develop a customized learning path for each student
- **Student pass rates went up approximately 20% within one year**

“Students came from different backgrounds with varying levels of knowledge. With the use of Maple T.A., students got the chance to create their own learning path”

Robert Meijeringh, Amsterdam University of Applied Sciences

## Test Anywhere, Anytime

### University of Canterbury

- Used Maple T.A. in mathematics courses to measure progress
- After an earthquake, classrooms were damaged and could not be used
- They expanded their use of Maple T.A. to support active learning, making it an integral part of an online course students did from home
- Now Maple T.A. continues to be an important tool for their mathematical instruction, on and off campus
- **With the help of Maple T.A., they were able to offer their full academic program that year**



“The depth of questions possible with Maple T.A. and the Maple engine is what I consider its biggest strength.”

Phillipa Williams, University of Canterbury

## Improve Drop-Out Rates

### University of Guelph

- Economics class
- Half of the students used Maple T.A., half were given traditional assignments
- Students in the Maple T.A. group demonstrated better understanding
- More students in the Maple T.A. group stated that they liked the course
- **Drop-out rates reduced by more than 10%**

“Besides being an excellent learning tool for students, Maple T.A. is a wonderful aid for teachers too. We saved significant amounts of time in marking tests and assignments, freeing instructors' and Teaching Assistants' time to do more productive work.”

Dr. Sadanand, University of Guelph

## Maple T.A. Question Content

Maple T.A. puts you in full control of your testing content. With thousands of questions to choose from, the ability to customize those questions easily, and a comprehensive set of authoring tools for creating new content, Maple T.A. gives you the content and the flexibility you need to teach your course, your way.



### Maple T.A. Cloud

**Thousands of questions** are available in the Maple T.A. Cloud, ready for immediate use or customization. Content is available for a variety of subjects, including:

- Calculus
- Precalculus
- Algebra
- Differential equations
- Linear Algebra
- Physics
- Chemistry
- Engineering
- Statistics
- Economics

These questions have been created and shared by educators like yourself, and are freely available for you to use and customize. Downloading and sharing questions via the Maple T.A. Cloud is seamlessly integrated into Maple T.A.

### Full Courses

Complete sets of questions, including assignments, are available for Calculus I and Calculus II, Introductory Statistics, and more.

### Packaged Content

In addition to questions available within the MapleCloud, there are pre-packaged sets of questions available that have been developed in partnership with prestigious organizations and school systems.



Maple T.A. MAA Placement Test Suite



The Building Better Math Project, British Columbia Institute of Technology (BCIT)



CEGEP



## What Customers Are Saying

“After moving to Maple T.A., we’ve found that we can save approximately \$100,000 per year on our grading budget, which we can use to support activities and programs we couldn’t otherwise offer.”

Carrie Howells, Instructional Support Coordinator, Mathematics Faculty Computing Facility, University of Waterloo

“Maple T.A. has proved to be a valuable resource for us. Time usually spent assessing and evaluating students is now used to enhance and improve our question databases.”

Philippe Lonjou, Associate Professor, INSA Lyon

“We are also beginning to use Maple T.A. as a learning platform in its own right. For example, we associate instructional videos with questions so students can hear the teacher’s voice and watch what he does as he solves a problem on paper.”

Tommy Gustafsson, Director of Studies, Department of Mathematical Sciences, Chalmers University

“The enormous benefit that Maple T.A. can bring to the teachers and the students is obvious once you see how the tool works.”

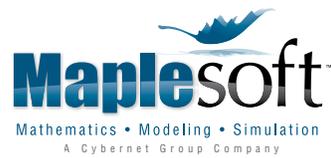
Wu Luo, Professor, Shanghai Second Polytechnic University

“The use of Maple T.A. gave us the flexibility to teach accordingly, which was very important because students came from different backgrounds with varying levels of knowledge. With the use of Maple T.A., students got the chance to create their own learning path.”

Robert Meijeringh, Professor, Amsterdam University of Applied Sciences

“The lower drop-out rate indicates that students who used the Maple T.A. tests and assignments had a better understanding and grasp of the subject than the other students.”

Asha Sadanand, Professor of Economics and Finance, University of Guelph



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