



Getting Started Guide

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Preface	vii
Audience	vii
Goals	vii
Conventions	vii
1 Introduction to Maple T.A.	1
1.1 Product Overview	1
1.2 Logging On	2
1.3 The Class Homepage.....	2
1.4 Creating a Class	3
1.5 Navigating	5
1.6 Accessing the Help System.....	5
1.7 Avoiding System Time-Outs.....	5
2 Question Banks.....	7
2.1 Overview.....	7
2.2 Question Bank Editor	8
2.3 Creating a Question Bank	8
Start a New Question Bank	9
Add a Topic	9
Adding a Question	9
Saving a Question Bank	11
2.4 Example Questions	12
The Question Designer	12
Multiple Choice Question using the Question Designer	14
Multiple Choice Question with Randomly-Determined Parameters	16
Multiple Choice Question Incorporating 2-D Math	19
Maple-Graded Question	20
Plotting the Student's Response	22
Inserting a Maple Plot in the Question Feedback	22
Apply Partial Grading to Maple-graded Questions	23
List Question using the Question Designer	23
Numeric Question using the Question Designer	25
Equation Editor	26
2.5 Editing an Installed Question Bank	26
2.6 Downloading a Question Bank.....	27
Backing up a Question Bank to Your Hard Drive	27
Opening a Question Bank Downloaded to Your Hard Drive	27
3 Assignments.....	29
3.1 Overview.....	29
Assignment Editor Main Menu	30
Warnings and Locking Mechanism	31
3.2 Creating Assignments.....	31
3.3 Naming Assignments.....	32
3.4 Selecting Questions.....	32
Individual Versus Grouped Questions	33
Individual Questions	33
Question Groups	33

3.5	Setting Policies	33
	Assignment Types	34
	Assessment Type Assignments	34
	Study Session and Mastery	36
	Setting the Assignment Type	37
	Assignment Feedback	37
	Assignment Properties	38
	Setting a Passing Score	38
	Setting a Time Limit	38
	Setting the Number of Questions per Page	38
	Setting the Maximum Number of Attempts	39
	Scheduling Assignments	39
	Assignment Visibility	39
3.6	Reviewing and Saving Assignments	40
	Finishing an Assignment	40
	Assignment Status	40
3.7	Special Cases	41
	Deleting Assignments	41
	Shared Assignments: Saving Your Changes	41
4	Gradebook	43
4.1	Overview	43
4.2	Gradebook Views	43
	Generating Reports	44
4.3	Student Statistics	45
	Assignment Weighting	46
4.4	Assignment Statistics	48
4.5	Item Statistics	49
4.6	Add External Assignment	49
5	Class Management	51
5.1	Overview	51
5.2	Class Roster	51
	Uploading a Class Roster	52
	Student Registration	52
5.3	Uploading Files	53
5.4	Shared Classes	53
	Creating a Shared Class	54
	Shared Class Content Updates	55
5.5	Course Modules	56
	Creating a Course Module	57
	Exporting a Course Module	57
	Importing and Installing a Course Module	58
	Additional Notes	59
	Inheritance of Question Banks and Assignments	60
6	Additional Resources	61
6.1	Maple Application Center	61
	Index	63

Preface

Audience

The information in this guide is intended for instructors using the Maple T.A. system for the first time.

Goals

This guide serves as an introduction to the Maple T.A. system. The first five chapters provide information related to each component of the system. The sixth chapter provides additional resource information.

Initially, the chapters should be read in sequence. This provides a linear introduction to the process of using the components in the Maple T.A. system. However, this guide can be used as a quick reference or as a launching point for the Help system. For your convenience, this guide also includes an index.

Conventions

This guide uses the following typographical conventions.

- **Arial bold font** - dialog, menu, or text field
- **Arial bold Important** - information that must be read and followed
- **Arial bold Note** - additional information relevant to the section or procedure
- **Century Schoolbook bold** - new term
- `courier font` - Maple command or package
- *italics* - section or Help system cross-reference

1 Introduction to Maple T.A.

1.1 Product Overview

Maple T.A. uses **question banks** as the basis for constructing **assignments**. Question banks are collections of questions from class homework, test items, or other class problem material.

Four types of users interact with Maple T.A.

- Instructors create questions and assignments.
- Students complete assignments created by instructors.
- Proctors validate student identity and grant assignment access.
- System administrators manage classes and users.

As the **Instructor**, you control the rules and policies for assignments, which can range from self-study and homework sessions to proctored exams. When you are satisfied with the questions and rules in your assignment, you publish it for use by students. You control availability and due dates, and set grading parameters. Grades are automatically recorded in the system **gradebook** and, if necessary, you can change these grades.

Once you log in to the Maple T.A. system, you can access your Maple T.A. class or classes. This is where all system interactions occur for you, your students, and the proctors in your class. Your class contains question banks, assignments, resource files, and the class gradebook.

Students logged into the system are allowed to register in your class, take assignments as you make them available, and review the results of assignments they have completed.

Note: As an instructor, you can lock access to student registration and upload a class roster instead. For details, see *Student Registration* on page 52.

Proctors can log in to validate a student's identity prior to administering a proctored exam.

1.2 Logging On

Log in to the system using the username and password your system administrator has provided. The main system page is called the **System Homepage**. The **System Homepage** provides access to the classes you are teaching, and those in which you are a student or proctor.

If the system administrator has created a class for you, your class will be listed under the **Classes I Am Instructing** section on your system homepage.

If your system administrator has not created a class for you, you can create a class. See Section 1.4.

1.3 The Class Homepage

Instructors access the **Class Homepage** to:

- Create and edit question banks
- Create, publish, and manage assignments
- Access a gradebook that records student work and assignment results

Figure 1-A Class Homepage

The screenshot displays the Maple.T.A. interface for the 'Calculus 137 : Class Homepage'. At the top, there is a navigation bar with links for 'Actions', 'Content Manager', 'Gradebook', 'Help', and 'Logout'. Below this, the page title 'Calculus 137' is shown, along with the instructor's name 'Tom Roberts' and email 'troberts@royalcollege.com'. A table lists the available assignments with columns for 'Assignment Name', 'Points', 'Type', and 'Availability'.

Assignment Name	Points	Type	Availability
Demonstration of the Maple-graded Question Type	25.0	Practice	Unlimited
Demonstration of Question Types	63.0	Practice	Unlimited
Assignment 1	3.0	Homework/Quiz	Unlimited

From the **System Homepage**, click the link to your class to open the **Class Homepage**. The **Class Homepage** displays the class and instructor name, and the list of assignments, quizzes, and tests that you have posted.

The assignment list displays the name and type of assignment, associated points, availability (that is, scheduled dates and times), and specific policies in the assignment, for example, time limit. Click the listed assignment name to launch the assignment.

The following menu items are available from the **Class Homepage**.

- **Actions** -> Class Info, Add Child Class, User Manager, and Proctor Tools
- **Content Manager** -> Assignments, Question Banks, Course Modules, and Website Editor
- **Gradebook** -> Open, Add External Assign.
- **Help** -> Instructor, Other Help -> Proctor, Other Help -> Student, Getting Started, and About
- **Logout**

Figure 1-B Class Homepage with Content Manager Menu Expanded

The screenshot shows the Maple.T.A. interface for the 'Calculus 137 : Class Homepage'. At the top, there is a navigation bar with 'Maple.T.A.' and 'MapleSoft' logos. Below the navigation bar, there is a breadcrumb trail 'System Homepage > Class Homepage' and a welcome message 'Welcome Tom Roberts [My Profile]'. The main navigation menu includes 'Actions', 'Content Manager', 'Gradebook', 'Help', and 'Logout'. The 'Content Manager' menu is expanded, showing 'Assignments', 'Question Banks', 'Course Modules', and 'Website Editor'. Below the navigation menu, the class name 'Calculus 137' is displayed, along with the instructor's name 'Tom Roberts (roberts@royalcollege.com)' and a link to 'My Profile'. A table of assignments is shown below, with columns for 'Assignment Name', 'Points', 'Type', and 'Availability'.

Assignment Name	Points	Type	Availability
Demonstration of the Maple-graded Question Type	25.0	Practice	Unlimited
Demonstration of Question Types	63.0	Practice	Unlimited
Assignment 1	3.0	Homework/Quiz	Unlimited

1.4 Creating a Class

Both you and your administrator have sufficient privileges to create unique (new empty) classes or one based on shared material.

To create a new class:

1. Start at the **System Homepage**.
2. From the **Actions** menu, select **Add Class**.
3. Complete the class registration form and click **Submit**.

Course ID

Select a unique string of letters and/or numbers as the Course ID.

Class Name

Select a unique name for your class. This name is displayed as the link to your Class Homepage. The class name should be between 5 and 50 characters long. It cannot contain the characters <, >, or &.

Instructor

Your name will be automatically entered in this field.

School

Enter the name of your school.

Description URL

Optional. If you have created a webpage with additional information for your class, you can link to the page by providing the url.

Registration Locked

Open registration allows students in the system to enroll themselves in your class. The default setting is locked, therefore students will not be able to enroll themselves into your class.

Featured Class

Marking the class as a Featured Class allows the creation of child classes based on this class. This allows you to share the assignments, quizzes, tests, etc. with other classes by adding an entry to the **Inherited Content From** drop down menu.

Inherit Content From

You can inherit content from a parent class. This gives you access to already created assignments, quizzes, tests, etc.

4. The list of all your classes is displayed, including the link to your new class. Click the link to open your Class Homepage and review the contents of the class.

To create a copy of a shared class:

1. From the Class Homepage of the class you want to share, click the **Actions** menu, and select **Add Child Class**.
2. By default you are listed as the instructor for the new class. Click the **Change Instructor** link to select a different instructor.
3. Search for the instructor and click **Instructor Info**. The name of the instructor should be displayed above.
4. Click **Update Instructor**.
5. Complete the Class Registration form and click **Submit**.

1.5 Navigating

To navigate in the Maple T.A. system, use the menus to move forward and the Crumb bar (located under the Maple T.A. logo) to move backward.

Figure 1-C Crumb Bar



It is recommended that you *do not* use the back and forward browser buttons.

1.6 Accessing the Help System

Use the **Help** menu to access the online help for instructors. The help content is populated based on the role of the user logged in. As an instructor, you will be able to access help for instructors, proctors, and students.

1.7 Avoiding System Time-Outs

While working on a question bank, the system client (your computer) holds your changes to the working copy of the active question bank. While authoring or editing a question, if you click **Finish**, the system places a copy of your question in the class Web site cache.

⚠ Warning, if you do not interact with the Maple T.A. system for the time set in the system properties file (the default setting is 30 minutes) the system logs you out of your session and purges the question bank data, thereby flushing the cache and deleting your work. Contact your administrator to adjust the default time-out setting. If you open a second tab in the same web browser and began interacting on other sites, this is not considered interacting with the Maple T.A. system, therefore the time-out countdown will begin until you return to interacting with Maple T.A. system.

If the system server is restarted, the cache is also purged. The system reverts to the last installed version of your question bank. You can also upload a version of the question bank from your hard drive to your client.

If you stop interacting with the system for more than a few minutes, it is recommended that you either:

- Download your question bank to your hard drive
- Install your question bank in your class on the server

The question bank's persistence time is controlled by the system administrator. To change its value, contact your administrator.

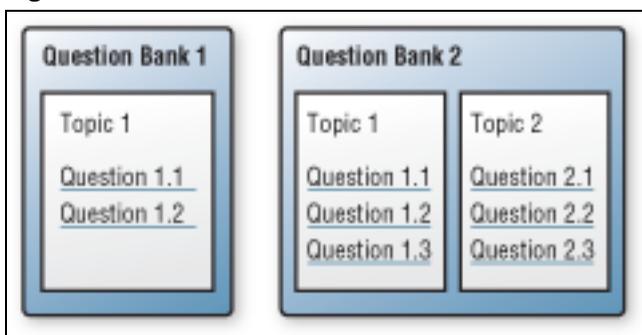
2 Question Banks

2.1 Overview

Maple T.A. uses question banks as the basis to construct assignments. Question banks form the basis of class homework, test items, or other class problem material.

Question banks are organized into **topics**, which contain individual questions. Topics help organize questions to match the structure of your course. They can also indicate learning objectives and other organizational schemes. Every question bank has at least one topic, and every topic must have at least one question.

Figure 2-A Question Bank Structure



There are three methods for authoring question banks in the system.

- Question Bank Editor
- Maple T.A. .qu plain-text script files
- LaTeX files that can produce math-intensive questions formatted to Maple T.A. specifications

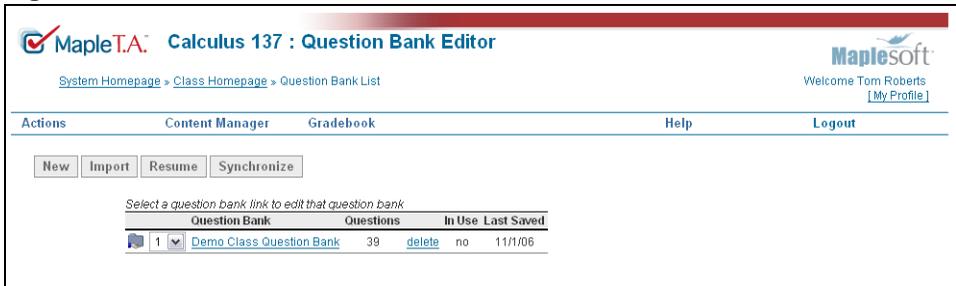
This document discusses using the **Question Bank Editor**.

2.2 Question Bank Editor

To navigate to the Question Bank Editor:

- From the **System Homepage**, access the class for which you want to create a question bank.
- From the **Content Manager** menu, select **Question Banks**.

Figure 2-B Question Bank Editor



In the **Question Bank Editor** main window, you can:

- Create a **New** question bank.
- **Import** a question bank (.qu file) from your computer.
- Open a question bank from the list of class question bank titles.
- **Resume** editing the question bank project you edited most recently.
- Reorganize the displayed list of question banks by clicking the associated drop-down button and selecting placement.
- **Delete** a question bank from the list.
- **Synchronize** to the most recent version from the parent class.
- **Validate** ensures that your questions are properly formed questions after a question bank is uploaded to the system.

2.3 Creating a Question Bank

When creating a question bank, the overall process must be followed.

- Start a new question bank
- Add a topic(s) because all questions must be in a topic.
- Add questions

- Save your work by installing your new question bank to the server or by saving a copy to your hard drive.

Start a New Question Bank

To start a new question bank, from the **Question Bank Editor**, click **New**.

Add a Topic

To add a topic to your question bank:

1. From the **Actions** menu, click **Add Topic**.
2. Enter the new topic name and click **OK**. The system displays the new topic in the left pane.

Whenever you add a topic, the system collapses any expanded topic, adds the new topic below any pre-existing topics, and expands the new topic. To expand the previously expanded topic, click the topic name or the triangle to the left of the topic name.

Adding a Question

To create a question:

1. In the left pane of the **Question Bank Editor**, expand the desired topic where you want your question to reside. The topic folder opens and displays the contained questions (by name) in the left panel.

Note: If you have just added the topic, the system expands the new topic automatically.

- Click **Add a question** to create a new question in the topic.
Begin by selecting a Question Type, providing a Question Description, and clicking **Next**.

Figure 2-C Question Bank Editor>Add Question Screen

- Enter the content of your question. Examples are provided in the *Example Questions* on page 12.

Figure 2-D Entering a Question

4. Once you have completed the question, click **Finish**.
5. A preview of the question is displayed. Provide an answer and click **Grade** to see how the question is graded. Click **Ok** to return to the Question Preview.
6. Click **Edit** to continue refining the question as necessary.

Maple T.A. provides the following question types.

- Mathematical & Scientific Free Response Question Types (14 varieties including formula, numeric, and questions that use the Maplesoft™ Maple™ mathematical software to grade and plot student responses)
- Multiple Choice (permuting and non-permuting)
- Multiple Selection (permuting and non-permuting)
- True-or-False
- Ungraded Essay
- Fill-in-the-blank including text region or drop down menu
- Question Designer
- Key Word or Phrase
- List
- Clickable Image
- Short Phrase
- Matching
- Multipart Questions (consisting of parts that are of any question type; can be nested)
- Palette Questions (using a programmable palette of symbols for the entry of student responses)
- Questions with applet interaction
- Questions using Web references / objects (including plots)

For examples, see *Example Questions* on page 12.

Saving a Question Bank

When working in the **Question Bank Editor**, the system does not save the changes to the question bank until you save it. After you save a question bank to the system, it is available for assignment creation. You can also export the question bank to your hard drive, but this does not make the question bank available for assignment creation.

Note: You need to add at least one question to the question bank before attempting to save it.

To save a question bank that has been created or imported:

1. From the **Actions** menu, click **Save Question Bank**.
2. Enter a question bank name.
3. Click **Ok**. The system reports "Installation successfully completed."

Note: If you save the question bank with the same name, the system issues the following warning that you are about to overwrite the question bank.

This will replace all the topics and questions in that question bank with your current topics and questions. If you save your question bank under this title, any assignments that you have set up to use the question bank that's currently saved with this title will use the new question bank from now on. However records of assignments that students have already taken, will continue to show the questions from the old question bank. Click "OK" to continue and overwrite the existing question bank, or "Cancel" to pick a different title.

2.4 Example Questions

This document discusses three question types: Question Designer, Maple-graded, and List. You are guided through the process of designing a simple multiple choice question using the Question Designer, followed by editing the previous question to incorporate randomly-determined parameters. You will also learn how to insert 2-D math in your question. Creating a Maple-graded question, inserting plots into the Maple-graded question, and a creating List question will also be discussed.

The Question Designer

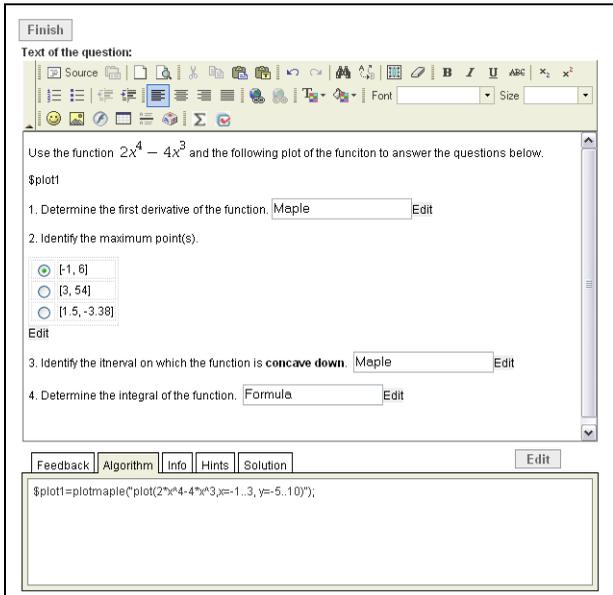
The Question Designer provides a flexible and extensible format for creating free response questions that can include multiple response cells. These questions are similar to multipart questions in that they provide a shell structure in which to embed other questions.

The Question Designer is an authoring environment as familiar as your word processor. Using the Question Designer, you enter question text and the correct answers wherever they should appear. Many formatting options such as bold, italics, and fonts are available through the text editor icons. You can also insert images, tables, or links to other file resources. For information on uploading files, see *Uploading Files* on page 53.

When you are satisfied with the appearance of the question, you define answer regions or **Response Areas**, and then apply grading and other

behaviors. Like all questions in Maple T.A., you can insert algorithmic variables and inline math expressions as required.

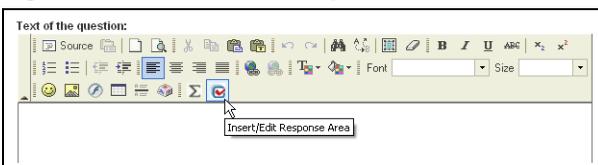
Figure 2-E Question Designer



From the Question Designer you can launch the **Response Area** window, which allows you to define the question type, weighting, grading behaviors, display behaviors, and correct answers. You can define additional behaviors according to the individual question mode you select. Additionally, you can add feedback, algorithms, hints, and solutions.

At the top of the Question Designer is the toolbar which includes the unique **Insert/Edit Response Area** button that you use to activate the **Response Areas** defined in your question.

Figure 2-F Insert/Edit Response Area



The Question Designer supports the following question types:

- **Formula Question Types:** Formula, Formula Mod C, Restricted Formula, Equation, Vector of Formulas, and Chemical Equation

- Maple-graded Question Types: Formula and Maple Syntax
- Multiple Choice, Non-permuting Multiple Choice (displayed horizontally or vertically)
- Numeric Question Types: With and without required unit dimensions
- List Questions, including text or menu input styles, exact or relaxed graders, multiple correct or incorrect responses can be specified, partial credit can be defined for each response
- Essay Question

The following provides instruction for creating a simple multiple choice question using the Question Designer. In addition, navigating, previewing, and enhancing the appearance of a question are discussed. The following procedure assumes you have completed the instructions in *Add a Topic*.

Multiple Choice Question using the Question Designer

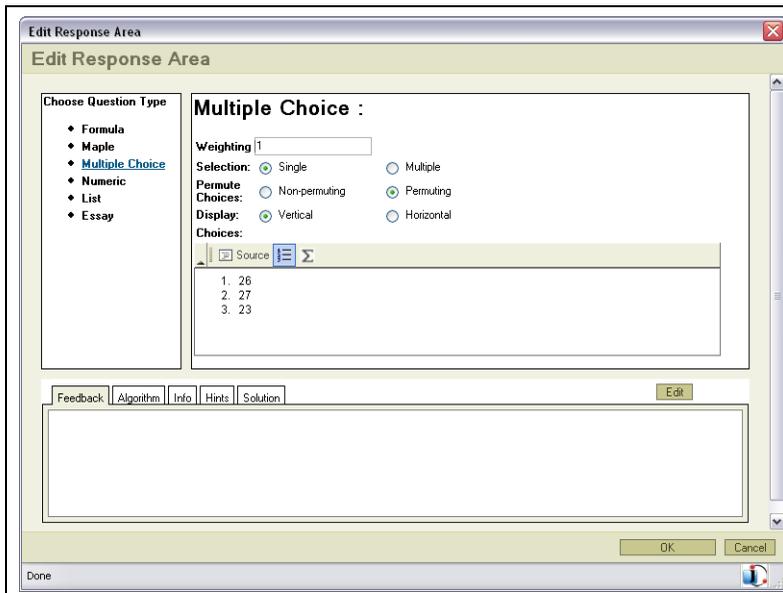
To use the Question Designer:

1. In the left column, select **Add a question**.
2. In the **Question Bank Editor>Add Question** window, select the **Question Designer** question type from the **Question Type** drop-down list. See “Question Bank Editor>Add Question Screen” on page 10.
3. Enter “Multiple Choice” in the **Question Description** field.
4. Click **Next**. The **Question Bank Editor** opens the **Question Designer**.
5. In the **Text of the question** field, enter the following.

Question: What is $17 + 9$?

6. Click the **Insert/Edit Response Area** button  to launch the **Edit Response Area** window.

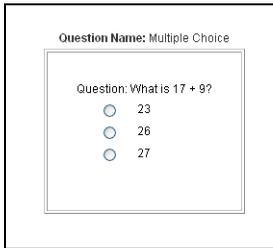
Figure 2-G Edit Response Area



7. Select **Multiple Choice** in the left pane.
8. Select **Permuting** in the Permute Choices row.
9. Highlight and delete **choice 1** and enter 26.
10. Highlight and delete **choice 2** and enter 27.
11. Press **Enter** to display a third multiple choice option.
12. Enter 23 and click **OK**.
13. Click the radio button beside the correct answer to mark this answer as correct and click **OK**.

14. Click **Finish**. The **Question Bank Editor>Preview Question** window opens, displaying the question as it appears to the student.

Figure 2-H Multiple Choice Question Preview Window



To test and review your question:

1. In the **Question Bank Editor>Preview Question** window, select the correct answer (26) and click **Grade**. The **Preview Grade** window opens. A **Correct** icon is displayed along with your answer matching the correct answer. Click **OK** to close this window and return to the **Preview Question** window.
2. Again in the **Preview Question** window, select an incorrect answer (23) and click **Grade**. The **Preview Grade** window opens. An **Incorrect** icon is displayed along with your answer and the correct answer. Click **OK** to close this window and return to the **Preview Question** window.

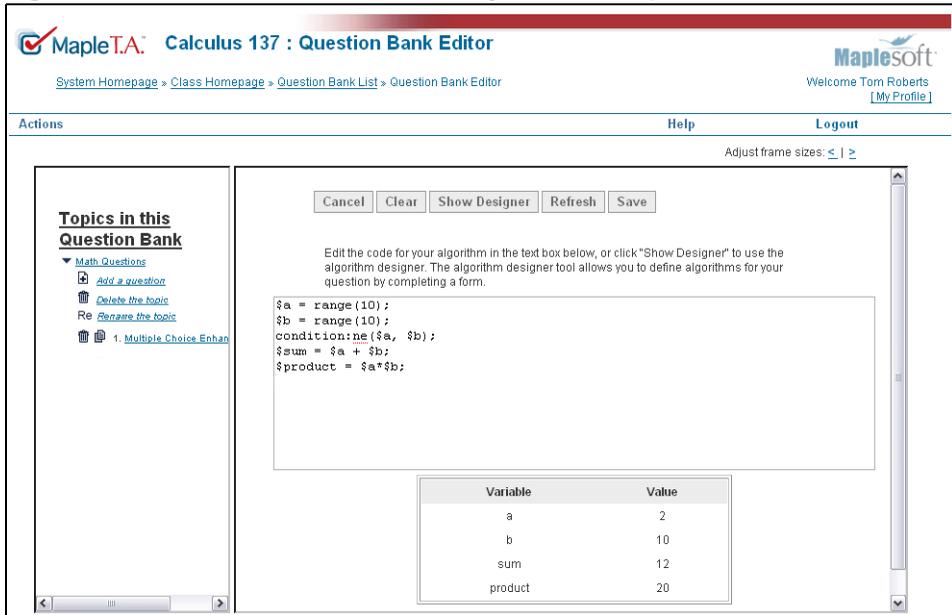
In the next example, the Multiple Choice question created in the previous example is extended by specifying algorithmic variables, hints, solutions, and feedback.

Multiple Choice Question with Randomly-Determined Parameters

Specifying algorithmic variables allows you to generate a question that varies each time you view it. Because values in the question are randomly

determined for each instantiation, students answer variations of the same question.

Figure 2-1 Question Bank Editor with Algorithm Example



To specify algorithmic variables:

Continuing with the Multiple Choice question.

1. In the **Preview Question** window, click **Edit**. The **Add Question** window opens.

Note: This procedure will overwrite the first question and not create a new one.

2. In the **Question Description** field, change the description to “Multiple Choice Enhanced”.
3. Click **Next**. The Question Designer window displays.
4. Select the Algorithm tab and click **Edit**.
5. Enter the following code in the text box.

```
$a=range(10);
```

```
$b=range(10);
```

```
condition:ne($a, $b);
```

```
$sum = $a + $b;
```

```
$product = $a*$b;
```

- The `range(n)` function generates a random integer in the range 1,..., n (inclusive). There are n numbers in that range. Hence, it is a selection of one number from a choice of n.
 - The `condition:ne` function ensures the two variables are not equal.
 - `$` is required to indicate a variable.
 - The question variables are set to `$a` and `$b`. These will range from 1 to 10. The answer is set to `$sum`, which is the integer value of `$a+$b`.
 - As this question is multiple choice, you must generate wrong answers to be displayed alongside the correct answer. For variation, the wrong answer variable `$product` is set to the randomly generated variable `$a*$b`.
 - All lines end with a semicolon.
6. Click **Save**. The Question Designer window is displayed.
 7. Select the Feedback tab and click **Edit**. The **Edit Feedback** window opens.
 8. Enter the following text in the feedback text field.

The sum of \$a and \$b is \$sum.
 - As the instructor, you can choose to have this information shown to students when they view their graded assignments.
 9. Click **Save**. The Question Designer window is displayed.
 10. You must now edit the text of the question and the answer choices to use the variables. In the **Text of the question** field, replace

What is 17+9?
with
What is \$a + \$b?
 11. Double-click **Edit** below the multiple choice options and replace the previous answers with the variables `$sum` and `$product`.
 12. Delete the third option by clicking the **Back Space** key.
 13. Click **OK**.
 14. Ensure that the `$sum` variable is selected to be the correct answer.
 15. Click **OK** to return to the Question Designer window.
 16. Click **Finish**. The **Preview Question** window opens. Test the question by selecting an answer and clicking **Grade**.

Note: Using the Question Designer, you can add feedback, algorithms, hints, solutions, and information fields in the same interface as the question text as illustrated in this example. You can also add these fields in the Add Question screen by selecting **Edit** beside each field. See “Question Bank Editor>Add Question Screen” on page 10. For all other question types, the Add Question window is the only place to add these fields.

The following example provides instruction for creating a multiple choice question using the question designer to determine a square root.

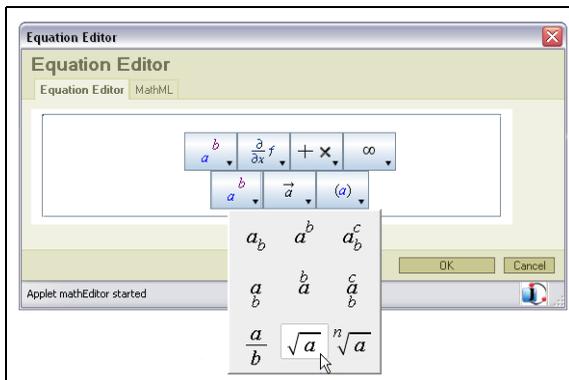
Multiple Choice Question Incorporating 2-D Math

1. In the left column, select **Add a question**.
2. In the **Question Bank Editor>Add a question** window, select the **Question Designer** question type from the **Question Type** drop down menu.
3. Enter “Multiple Choice with 2-D Math” as a description in the **Question Description** field.
4. Click **Next**. The Question Designer window displays.
5. In the **Text of the question** field, enter the following.

What is

6. Click the **Sigma** button, Σ , to insert 2-D math. The **Equation Editor** opens.
7. Right-click in the **Equation Editor** field. From the displayed palettes, select a square root symbol. The symbol is displayed in the Equation Editor.

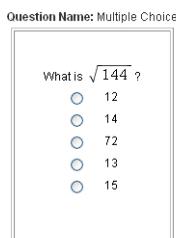
Figure 2-J Equation Editor



8. Replace the “a” in the square root with 144 and click **Ok**. The square root of 144 is now displayed in the text region in the Question Designer.
9. Click the **Insert/Edit Response Area** icon.
10. Select **Multiple Choice** in the left pane.
11. Select **Permuting** in the Permute Choices row.
12. Enter 12, 14, 72, 13, and 15 as possible answers, one for each field.
13. Click **OK**.

14. Click the radio button beside the 12 to mark this as the correct answer and click **OK**.
15. Click **Finish**. The **Question Bank Editor>Preview Question** window opens, displaying the question as it appears to the student.

Figure 2-K Multiple Choice Question Incorporating 2-D Math Preview



Maple-Graded Question

The Maple-graded question type uses Maple to evaluate a student response and to render a plot of the student's response. The Maple-graded question type gives you access to the computational power of Maple. It includes facilities for algebra, calculus, differential equations, discrete mathematics, graphics, numerical computation, and many other areas of mathematics.

You can also use Maple to create questions whose responses require sets, differential equations, unevaluated integrals, and many other types of mathematical data. You can find common errors and reward partial marks.

With the Maple-graded question type, you also have access to the plotting capabilities of Maple. You can use Maple to plot a student response during the test (or a function derived from a student response, for example, the definite integral of the student response) for a Maple-graded question type or display a plot for any question type.

You must adhere to these guidelines when using Maple code for Maple-graded questions.

- A Maple-graded question must use valid Maple code to evaluate the answer. Complete each line of code with a semicolon. For information on Maple code, refer to your Maple system documentation.
- The grading code must evaluate to a Boolean value or a floating-point number between **0** and **1**.
- Use the long form name for all package commands, for example, `VectorCalculus[ArcLength]`.

- Maplet applications are not accessible in Maple T.A.

Figure 2-L Question Bank Editor, Maple-Graded Question

The screenshot shows the Maple T.A. Question Bank Editor interface. The title bar reads "Maple T.A. Calculus 137 : Question Bank Editor". The breadcrumb trail is "System Homepage > Class Homepage > Question Bank List > Question Bank Editor". The user is identified as "Welcome Tom Roberts [My Profile]".

The interface is divided into several sections:

- Actions:** Contains "Help" and "Logout" links.
- Adjust frame sizes:** A control with arrows and a plus sign.
- Topics in this Question Bank:** A sidebar with a tree view under "Math Questions". It includes links for "Add a question", "Delete the topic", and "Rename the topic". Two topics are listed: "1. Multiple Choice Enhanc" and "2. Multiple Choice".
- Question Editor:**
 - A "Finish" button at the top.
 - A text field for "Enter the text for the question:" containing "Differentiate $\sin(x)^x$ ".
 - A rich text editor toolbar above the text field.
 - A section titled "Enter Maple code that evaluates to the correct answer:" with instructions: "The last line must evaluate to an expression that will be stored as the variable \$ANSWER. The variable \$ANSWER will be available when formulating the grading syntax, e.g., evalb((\$ANSWER)-(\$RESPONSE)=0);". Below this is a code editor containing the Maple code: `diff(sin(x)*x, x);`
 - A section titled "Enter Maple code to grade the student response:" with instructions: "The last line must evaluate to a Boolean value (true or false) or a floating-point value between 0 and 1. The variable \$RESPONSE is automatically initialized to the student's response." Below this is a code editor containing the Maple code: `evalb (($ANSWER) - ($RESPONSE) =0);`

To create a Maple-graded question:

1. Click **Add a question** to create a new question in a topic.
The **Question Bank Editor > Add Question** window opens.
2. From the **Question Type** drop-down menu, select **Maple-graded**.
3. In the **Question Description** field, enter "Differentiation".
4. Click **Next**.
5. Enter the text of the question field:
Differentiate $\sin(x)^x$
6. Enter **Maple code that evaluates to the correct answer**:
`diff(sin(x)*x, x);`

7. The following **Maple code to grade the student response** is provided automatically:

```
evalb(($RESPONSE)- ($ANSWER)=0);
```

\$RESPONSE is a system variable that corresponds to the response the student entered when completing the question and \$ANSWER refers to the correct answer you entered in step 6.

8. By default, the Maple-graded question type accepts **Formula** expressions. In **Maple-graded Formula** question types, students can enter a math formula, that is, an expression constructed of numbers, variable names, and the standard arithmetic expressions and functions. The student must not use Maple commands in the response. The instructor must write code such that the student does not have to use a trailing semicolon in the response. For details, refer to the Maple T.A. Help system
9. Scroll to the top of the page and click **Finish**.
10. Enter the correct answer, $\cos(x)*x+\sin(x)$, and click **Grade**.

Plotting the Student's Response Using the Maple-graded question type, you can generate a plot of the student's response. This allows students to visually check their response before proceeding.

To plot the student's response:

1. Click **Edit**, and then **Next**. The **Question Bank Editor>Edit Question>Maple Graded** window opens.
2. Scroll to the bottom of the question. Using a standard plot command in Maple, enter the student's response as well as the derivative of the question. If the student is correct, the plot region will display a plot with a single curve. In the **Plotting** field, enter:

```
plot([$RESPONSE, diff(sin(x)*x, x)], x=-10..10);
```

\$RESPONSE is a system variable that corresponds to the student's response.

3. Scroll to the top of the screen and click **Finish**.
4. Test the question by entering a response and selecting the **Plot** link. The plot is displayed in a separate window.

Inserting a Maple Plot in the Question Feedback You can also insert a Maple generated plot in the question text, hints, or answer of any type of question.

To insert a Maple plot as an algorithmic variable:

1. Click **Edit** to edit the current question.
2. Click the **Add** button in the **Algorithm** section.

<p>Algorithm</p> <hr/> <p>There is no algorithm.</p>	<input type="button" value="Add"/>
---	------------------------------------

3. Enter the following:


```
$plot1=plotmaple("plot(sin(x)*x, x=-10..10)");
```
4. Click **Save**. You can use the algorithmic variable **\$plot1** to display the Maple plot in all question types anywhere algorithmic variables can be used, i.e. in the question text, hints, and feedback.
5. Click the **Add** button in the **Feedback** section.
6. Enter the following:


```
A plot of the expression is $plot1.
```
7. Click **Save**.

Apply Partial Grading to Maple-graded Questions You can modify Maple-graded questions to allow grading between 0.0 and 1.0 for part marks.

The following is a simple application of partial marks. In solving $3x+6=12$ for x , students may add 6 to 12 instead of subtracting it. If they made this error, but divided by 3 properly, they would get a result of 6. In this case, the instructor can give them half marks by using the grading code shown below.

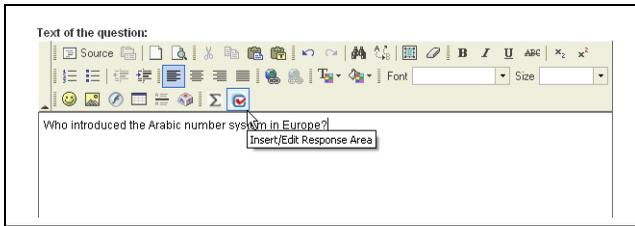
Text for the question	Solve for x in the following equation: $3x+6=12$
Maple code that evaluates to the correct answer	<code>solve(3*x+6=12,x);</code>
Maple code to grade the student response	<code>if (\$RESPONSE=6) then 0.5 else evalb(\$RESPONSE- (\$ANSWER)=0) end if;</code>

List Question using the Question Designer**To create a List question:**

1. Click **Add a question** to create a new question in a topic.
The **Question Bank Editor> Add Question** window opens.
2. In the **Question Bank Editor>Add Question** screen, select the **Question Designer** from the **Question Type** drop-down list.
3. Enter "List" as a description in the **Question Description** field.

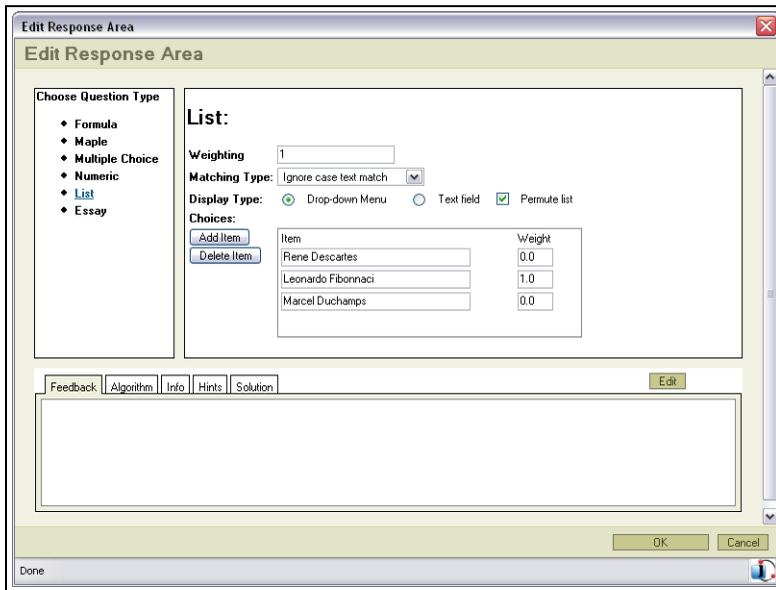
4. Click **Next**. The **Question Designer** window opens.
5. In the **Text in the question** panel, enter the following question.
Who introduced the Arabic number system to Europe?
6. Click the **Insert/Edit Response Area** button to launch the **Edit Response Area**.

Figure 2-M Insert/Edit Response Area button



7. In the Choose Question Type area, click **List**.

Figure 2-N List Question Type using the Question Designer



8. The default Matching Type is set to **Exact text match** which applies strict grading, case-sensitive, literal string-matching as your grading more. To invoke a less stringent grader that ignores case sensitivity and punctuation, select **Ignore case text match**. The List mode also provides a

regular expression-matching grader, useful for customization of the grading routine. These fields are applicable when the Display mode is set to Text Field, which presents students with a blank response area. For this example, select **Drop-down Menu**. Ensure the Permute list check box is selected.

9. Enter answer choices in the **Item** fields. To add additional items, click the **Add Item** button.
10. As you add possible answers, the system assigns them a credit value of “0.0” in the right column. Additional answers are graded as fully correct (“1”) or partially correct answers (with any value between 0 and 1 assigned). Edit the weight for Leonardo Fibonacci and enter 1.0.
11. Click **OK** to exit the **Edit Response Area** window.
12. Click **Finish** to exit the **Edit Response Area** window.
13. Click the **Finish** button at the top of the **Question Designer**. The Question Bank Editor displays the question as it is viewed by students.

Numeric Question using the Question Designer

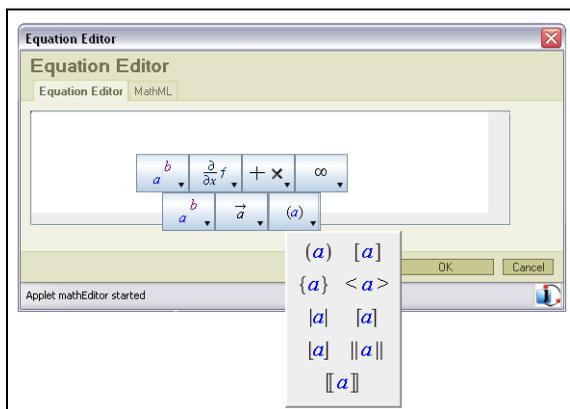
1. In the **Question Bank Editor>Add Question** screen, select the **Question Designer** from the **Question Type** drop-down list.
2. Enter “Question Designer Numeric” as a description in the **Question Description** field.
3. Click **Next**. The **Question Designer** opens.
4. In the blank text area, enter the following question.
Round 2.76789m to three significant digits.
5. Click the **Insert/Edit Response Area** button (Check mark symbol) to launch the **Edit Response Area** window.
6. In the **Choose Question Type** area, select **Numeric**.
7. Enter the correct answer “2.77” in the **Numeric Part** field.
8. Click the blank field next to the **Units Part** field and enter a required unit dimension for the correct answer (in this case, **m** for meters.) If you do not enter a required unit dimension, the system displays only a single response cell that accepts only numbers for student answers. If you do enter a required unit dimension, students are presented with two cells: one for the number part and one for the unit dimension. The student must enter correct values in both cells to receive full marks for the question.
9. To set the margin of error, click the **Required with** drop-down menu, which is set to **Absolute Accuracy** by default.
You can specify absolute precision (student answers must match the defined answer exactly), or a significant figure precision for an exact answer match.

10. Modify the tolerance by choosing one or more of the numeric formatting options. The available options are Absolute Accuracy, Set # figures, Margin of error, Margin in n'th digit, and Percentage margin.
11. Click **OK** and then **Finish** to save and preview the question.

Equation Editor

You can enter symbolic math in any question type. In the **Add Question Text** window, (this window usually displays after the **Question Bank Editor** > **Add Question** window for each question type), click the **Sigma** symbol in the toolbar. The **Equation Editor** dialog opens. Right-click (**Control**-click for Macintosh) to access the palettes.

Figure 2-O Enter Symbolic Math



2.5 Editing an Installed Question Bank

As the need arises, you can edit your installed question banks to update your assignments and change your questions.

To open an installed question bank:

1. From the **Class Homepage**, click **Content Manager** and select **Question Banks**.
2. From the **Question Bank** list, click the name of the question bank to open for editing.
3. Proceed with editing as required.

4. When you have completed editing, save the question bank. From the **Actions menu** click **Save Question Bank**.

When saving an updated version of a question bank, you can:

- Replace the previous version by using the same name. New assignments that reference the previous version are automatically edited to use the updated questions from the new version.
- Keep both versions by using a new name. Assignments that reference the previous version continue to use the previous versions of the questions. To use the new questions, create new assignments or edit old assignments to reference the updated question bank.

2.6 Downloading a Question Bank

Backing up a Question Bank to Your Hard Drive

The process in this document outlined the creating, editing, and installing of a question bank. While editing a question bank, it is recommended that you install the question bank or back up your work by downloading to your hard drive regularly.

To back up a question bank by downloading to your hard drive:

1. From the **Question Bank List**, select a Question Bank.
2. From the **Actions menu**, select **Export Question Bank**. The File Download dialog opens.
3. The question bank is listed with the temporary name `testbank.qu`. Click **Save**. In the **Save As** dialog, navigate to a suitable directory and enter a question bank name. Click **Save**. The file is saved with the `.qu` extension.
4. A message is displayed indicating the download is complete. Click **Close**.

Opening a Question Bank Downloaded to Your Hard Drive

You can import the saved question bank file (plain-text script file), and then continue editing or install it in your class.

To open a question bank file that was downloaded to your hard drive:

1. From the **Class Homepage**, click **Content Manager** and select **Question Banks**.
2. Click **Import**.

3. To locate your file, click **Browse**.
4. Navigate to the source file on your hard drive and click **Open**. The path and filename are displayed in the **Question bank** field.
5. Click **Import**. The topics are displayed in the left panel of the Question Bank Editor.
6. Save your imported question bank. From the **Actions** menu, select **Save Question Bank**.

When you upload a question bank file into the system, it performs a set of validation routines to ensure that the questions function. Occasionally, you may encounter an error with a variable name or definition upon uploading. The following is a summary of the system's analysis of variables upon initial loading of a question bank file.

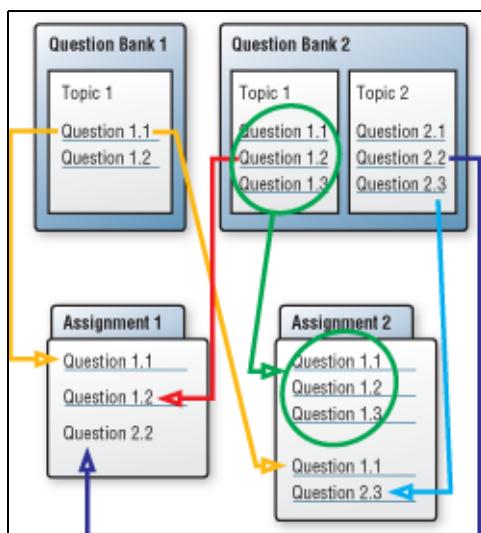
- For variables displayed within HTML text, for example, in a question statement or feedback, a problematic variable does not produce a data value generated from its definition. Instead its variable name is displayed, highlighted in red.
- For variables appearing in non-displayed field parameters, for example, the answer to a question, the variables \$ANSWER and \$RESPONSE default to 0. All others have the variable name passed.

3 Assignments

3.1 Overview

Assignments are created by selecting questions from question banks. The assignments you create can be organized such that Maple T.A. reorders questions, generates questions (based on a range of variables you define in the question bank), or displays a subset of questions. Each student viewing your assignment can potentially complete a unique set of questions.

Figure 3-A The Relationship between Question Banks and Assignments



The **Assignment Editor** allows you to create new assignments, edit the content, properties, and appearance of existing assignments, delete assignments, and change the order of existing assignments.

Assignment Editor Main Menu

From the **Class Homepage**, click **Content Manager** and select **Assignments**. From the **Assignment Editor** main window, you can:

- Click **New** to create a new assignment.
- Reorganize the order of displayed assignments using the numbered list beside each assignment.
- Open assignments for editing by clicking the assignment name link.

To activate other options, hover your mouse over the assignment name. Six option buttons are displayed.

- Edit assignments by clicking **edit**.
- Copy assignments by clicking **copy**.
- Delete assignments by clicking **delete**.
- Hide/show assignments from student view in the **Class Homepage** by clicking **hide/show**.
- Print assignments. Clicking the **print** link displays the print preview of the assignment. You then have the option to print the assignment or click **Back** to return to the **Assignment Editor**.
- View a summary of the assignment by clicking **summary**.

Figure 3-B Assignment Editor

Maple.T.A. Calculus 137 : Assignment Editor

System Homepage > Class Homepage > Assignment List

Welcome Tom Roberts [My Profile]

Actions Content Manager Gradebook Help Logout

New Synchronize

Select an assignment name link to edit that assignment.
While an assignment is being edited it will be locked. Please ensure that you exit the assignment editor by using the page navigation buttons.
Failure to do so will leave the assignment in a locked state.

	Assignment Name	Points	Type	Availability	Modified	Active
1	Demonstration of the Maple-graded Question Type	25.0	Practice	Unlimited	6/20/05	0
2	Demonstration of Question Types	63.0	Practice	Unlimited	6/20/05	0
3	Assignment 1	3.0	Homework/Quiz	Unlimited	5/2/07	0

The **Assignment Editor** main menu lists assignments created for your class. These assignments may be populated with a series of assignments based on testing materials, or other shared question banks. If not, you initially see a blank list here. For more information on shared classes, see *Shared Classes* on page 53.

Warnings and Locking Mechanism

When an assignment is opened for edit, the system checks and warns the instructor whether the assignment has associated student records in the Gradebook or is currently in use by a student.

Note: The number of students currently using the assignment is displayed in the **Active** field of the **Assignment Editor** main menu.

- If the assignment is currently in use, the questions in the assignment are locked so that an instructor cannot edit them. You can edit some of the policies of the assignment like the time limit for example.
- If the assignment is not currently active, the assignment is *locked for editing* so that new active tests cannot be started during the editing process. Students who try to start the assignment while it is locked are notified with a warning message.

3.2 Creating Assignments

The **Assignment Editor** organizes assignment creation into a four step process.

- Naming your assignment
- Selecting questions
- Establishing rules and policies
- Reviewing, finishing, and publishing assignments to your class

To start a new assignment:

1. From the **Assignment Editor** screen, click **New** to begin a new assignment. The **Assignment Editor** displays four tabs: **Choose Name**, **Select Questions**, **Set Policies**, and **Review & Finish**.
2. Proceed to the instructions in *Naming Assignments*.

3.3 Naming Assignments

The assignment name is displayed to students on the **Class Homepage**.

To name your assignment:

1. In the **Choose Name** tab, enter a name for your assignment in the **Choose A Name For Your Assignment** field.
2. Optional. Click the **Advanced** button. Add assignment-level page headers and text for the results page in the appropriate fields.
3. Proceed to the instructions in *Selecting Questions*.

3.4 Selecting Questions

The **Select Questions** tab of the **Assignment Editor** allows you to select questions (individually or as a group) from question banks, assign question weighting, scramble the sequence of delivery, and merge individual questions to form specific question groups.

To select questions from question banks:

1. In the **Assignment Editor**, click the **Select Questions** tab.
2. From the **Question Bank** list, select a source question bank.
3. If required, expand the topic lists and select the questions you want from the list on the left using the check boxes. Click the **Add** button after selecting a question or complete the selection process and click the **Add As Items** button. In either case, individual questions are added to your assignment.
4. Optional. To add a selection of items as a group, select questions using the check boxes. Click **Add As Group** to include them as a pool of questions within your assignment.
5. Optional.
 - Change the default question weighting (one point per question) to match your requirements.
 - Select **Scramble questions** to randomly order the questions when assignments are created.
 - Reorder questions within your assignment by using the drop-down lists.
 - **Merge** individual selected questions to form new question groups in your assignment.
6. Proceed to the instructions in *Setting Policies*.

Individual Versus Grouped Questions

Individual Questions If you add selected questions to your assignment as individual questions, each one is included in every version of the assignment served to a student, and you control question weighting individually.

Question Groups Adding questions in question groups provides you with the added option of selecting a group of questions and having the system select from the questions at random, according to criteria you specify (for example, choosing three of seven questions from the group each time a new assignment is created for a student). You set a single point value that is applied to every question in the group.

3.5 Setting Policies

In the **Set Policies** tab of the **Assignment Editor** window, you can:

- Select the type of assignment
- Set feedback options for the assignment
- Decide when to make it available to your class
- Establish other grading policies

Figure 3-C Assignment Editor, Set Policies Tab

MapleT.A.™ Calculus 137 : Assignment Editor

System Homepage > Class Homepage > Assignment List > Assignment Editor

Welcome Tom Roberts [My Profile]

Help Logout

1. Choose Name 2. Select Questions 3. Set Policies 4. Review & Finish

Advanced

Type of Assignment	Results
<input type="radio"/> Anonymous practice (No session results are recorded)	Not recorded
<input checked="" type="radio"/> Homework or Quiz (All session results are recorded)	Recorded
<input type="checkbox"/> Always rework the same assignment on return <input type="checkbox"/> Offer printable version of assignment	
<input type="radio"/> Proctored Exam (Requires proctor authorization to grade)	Recorded
<input type="checkbox"/> Also require proctor sign-in to start session	
<input type="radio"/> Mastery dialog (Control progress question by question)	Recorded
Edit mastery policies	
<input type="radio"/> Study session dialog (Flashcard style learning)	Not recorded

Feedback

During the assignment

Show hints

Allow students to check grades and feedback

For each question: show the correct answer show the question comment

After the assignment is graded

Show the final grade

For each question: show the correct answer show the question comment

Send email reports to

Restrict feedback until [clear](#)

If you have chosen to display feedback details, this option will delay their display until the specified date.

Assignment Properties

Passing score: out of 3.0

[Edit feedback messages](#)

If you have set a passing score, the defined feedback will be displayed to the student.

Time limit: minutes

Questions per page:

Max. # attempts allowed:

Scheduling (Eastern Standard Time)

Start: [clear](#)

End: [clear](#)

Visibility

Visible Assignment is visible to students when this box is checked.

Assignment Types

Assessment Type Assignments You can create graded assessments (**Homework or Quiz** and **Proctored Exam**), ungraded practice tests (**Anonymous Practice**), or assignments with set criteria (**Mastery** and **Study Session**). You can configure the number of questions on a page, create test instruction sheets and headers, and set policies for restricted access, repeated attempts, and other options.

Students answer questions one page at a time, and the system records their responses between pages. Jumping from question to question within an

assignment is allowed until students complete all questions (or choose to ignore the warnings to do so) and submit their responses for automatic grading.

Homework or Quiz assignments have the following format.

- Students are presented with an assignment consisting of any number of instructor-selected questions.
- Questions are delivered either in an instructor-specified or random sequence.
- Student responses during sessions are recorded (but not graded) after every question, so assignment sessions can be interrupted and continued upon next login.
- Students must be registered in the class and logged in to begin a Homework or Quiz assignment.
- By default, Homework or Quiz assignments can be attempted multiple times for credit. To limit the number of attempts a student can make on a particular assignment, use **Assignment Properties** of the **Set Policies** tab in the **Assignment Editor**.
- Results for every attempt at a Homework or Quiz assignment are recorded in the Gradebook for the class.

Proctored Exams are similar to Homework or Quiz assignments, but with an additional security measure to confirm the identity of the student taking the test. All Proctored Exams require a proctor to authorize students submitting their test for grading. You can require proctor authorization to validate student identity and grant assignment access at the start of a proctored exam. Students must be registered in your class. They are required to provide their student login and password to access assignments in addition to proctor authorization.

There are two types of proctors: **Global** and **Local**.

- Global proctors are defined by the System Administrator and can give authorization for any class.
- Local proctors are defined by the Instructor and can only give authorization for a particular class. To set up a local proctor, navigate to the **Class Homepage**. From the **Actions** menu, select **User Manager**. From **Actions** menu, select **Register Users**. In the User Role row, select the Proctor radio button. Select, or search for, a user from the list of registered users and click **Register**.

Proctors can give authorization directly, at the student's computer, or remotely through the **Proctor Tools** menu. In both cases, the proctor must sign in by giving a login name and password. To give authorization remotely,

the proctor must login, select the class and from the **Actions** menu, select **Proctor Tools**.

Anonymous Practice assignments are similar to Homework or Quiz assignments; however, the students results are not recorded. Any number of questions can be included, and the assignment is delivered in an instructor-specified sequence (or scrambled). Graded assignment reports are produced upon conclusion of the assignment, but results are not recorded in the Gradebook. Students can view their results at the end of the session; no permanent record is maintained. Results can be printed, but are only available for as long as a student displays them.

Study Session and Mastery These assignments usually draw from a large pool of assignment material (often algorithmically generated to produce limitless question permutations). The instructor chooses the questions to include and sets criteria for mastery assignments.

Assignments are delivered one-question-at-a-time, and the student submits each question for grading individually and immediately, instead of having the entire test graded at the end.

Mastery and Study Session assignment types emphasize the following pedagogical approaches.

- For Mastery assignments, instructors create carefully structured collections of questions grouped by learning objectives. Mastery assignments require a login and password, and results are recorded in the Gradebook. The default delivery is in sequential order.
- For Study Sessions, students control the study process by practicing question after question. You can provide hints and full solutions for questions to students while they work. Results are displayed one question at a time and are not recorded in the Gradebook.

For assignment attributes, see the following table.

Table 1: Assignment Types

Assignment Type	Graded	Recorded in Gradebook	Student Registered in Class	Hints Available	Solutions Available
Anonymous Practice	yes	no	yes	yes	no
Homework/ Quiz	yes	yes	yes	yes	no
Mastery	yes	yes	yes	yes	no
Proctored Exams	yes	yes	yes	yes	no
Study Session	yes	no	yes	yes	yes

Setting the Assignment Type

To set the assignment type:

1. Select one of the options in the **Type of Assignment** group box in the **Set Policies** tab of the **Assignment Editor**. Homework or Quiz is the system default assignment type.
2. For any assignment type, you can click the **Advanced** button to set prerequisite conditions.

If you select Mastery assignment type, by default, questions are organized in sequential order. To specify additional criteria for your assignment, click the **Edit mastery policies** link. For details, refer to the *Set Mastery Policies* help page in the Maple T.A. Help system.

Assignment Feedback

You can specify the type and timing of assignment feedback displayed to students.

Note: You can allow access to question hints (if they exist) in any assignment type. If you choose to display hints and comments but your source questions (from the Question Bank) do not include them, the system ignores the display settings.

To set assignment feedback:

- To display hints during an assignment, select the **Show hints** check box.
- To display the final grade after the assignment is graded, select the **Show the final grade** check box.

- **During the assignment**, you can display the correct answer or a comment for each question. Select from **Always**, **If correct**, **If incorrect**, or **Never** condition options for displaying the correct answer or question comment.
- **After the assignment is graded**, you can display the correct answer or a comment for each question. Select from **Always**, **If correct**, **If incorrect**, or **Never** condition options for displaying the correct answer or question comment.
- The program can send you an email whenever a student completes the assignment in Homework and Proctored Exam mode, giving the name of the student and the result. To receive email notification, select the **Send email reports** to check box and enter your email address.

Note: To use this feature, your system administrator must have an SMTP server configured.

- You can restrict feedback so that feedback details are not displayed until a certain date. Click the **Restrict Feedback** check box and click the calendar icon to choose a date.

Assignment Properties

In the **Assignment Properties** dialog, you can set:

- Passing score
- Time limit
- Number of questions on a page
- Maximum number of times an assignment may be taken

Setting a Passing Score If you select the Practice, Homework, or Proctored Exam assignment types, you can set a passing score for the assignment. If you set a score, the system assesses each assignment attempt as either Pass or Fail, and records this information in the Gradebook automatically. You can customize the pass/fail feedback clicking the **Edit Feedback Messages** link. The field shows the total available score for the assignment (for example, out of 10), which varies according to the composition of your assignment.

Setting a Time Limit If you select Homework or Proctored Exam assignment types, you can set a time limit for the test. If you set a limit, the program shows the student the time remaining during the course of the test. If the time limit expires during the test, the system informs the student, and does not allow the student to enter responses to any more questions.

Note: The timer does not stop until the student runs out of time or clicks **Grade**. The timer will continue to run even if the student has clicked **Quit and Save**.

Setting the Number of Questions per Page By default, the program displays one question per page when presenting an assignment to students.

You can use this option to deliver more than one question per page. If you have used question annotations and set the annotations to display at the top or the bottom of the page in which the question is loaded, your annotations appear as a page-level header or footer (rather than immediately before or after the question).

Note: Mastery and Study Session assignments automatically serve one question at a time. This is part of their instructional design and this setting cannot be changed for these assignment types.

Tip: If you are concerned about a student's ability to assess complicated questions over a slower online connection, it is recommended that you accept the default setting for questions per page (which is one-at-a-time). Loading one question at a time usually allows a student to move through the assignment effectively, but also saves each question response as it is completed.

Setting the Maximum Number of Attempts For Homework and Proctored Exam assignments, you can set the maximum number of times a student can take an assignment. If the student attempts more than the maximum amount, a message is displayed indicating the restriction. If the assignment is a Proctored Exam, the student can click the **Exception** button displayed in the restriction message screen. A proctor can then provide authorization.

Scheduling Assignments

Using the calendar function in the **Scheduling** dialog, you can set **Start** and **End** times for each assignment. These times govern the availability of the assignment to students accessing your Class Home Page. Scheduled times refer to your server clock and system's time zone set by your System Administrator.

Before and after the indicated availability window, the assignment is still displayed in the assignment list viewable by students on your Class Home Page, but it cannot be selected. Note that unavailable assignments appear in the list of assignments on the **Assignment Editor Main Menu** page. Additionally, unavailable assignments will appear in the student's past results page, if the student completed them.

Assignment Visibility

- Optional. By default, the **Visible** check box is selected. Clear this check box to temporarily exclude the assignment from the list of assignments displayed to students on your Class Home Page. Or, in the **Assignment Editor** main menu, click the **hide** option available on mouse rollover of the assignment name. See *Assignment Editor Main Menu* on page 30.

3.6 Reviewing and Saving Assignments

In the **Review & Finish** tab of the **Assignment Editor**, you can review assignment summary information, including:

- Assignment Type
- Questions Selected
- Scheduled Availability
- Rules and policies you established

To change settings in your assignment:

1. In the **Review & Finish** tab, click the highlighted link in the category to be changed.
2. A prompt appears asking whether to return to the tab where the option is set. Click **OK**. The appropriate **Assignment Editor** tab opens.
3. Make changes and return to the **Review & Finish** tab.

Finishing an Assignment

To accept and publish the assignment you have created or modified:

- Click **Finish** in the **Review & Finish** tab. You are returned to the **Assignment Editor** list of assignments for your class, where your new assignment is displayed in the list of all class assignments.

Assignment Status

Consider the following information regarding your assignment status.

- If you have scheduled the assignment for immediate availability, your new assignment is available for students in the **Class Homepage**.
- The system does not save partially completed assignments until you click **Finish** in the **Review & Finish** tab of the **Assignment Editor**. If you begin to create an assignment and then abandon it without clicking **Finish**, your additions and changes are lost. If you need to leave the **Assignment Editor** without finishing the assignment, it is recommended that you mark the assignment as hidden so that students cannot access it. Hide assignments from student view in the **Class Homepage** by hovering the mouse over the assignment name in the class assignment list, and then clicking **hide**.
- If the server shuts down before you click the **Finish** button, your editing changes will be lost. When the server restarts, it uses the last saved version of your assignment data. To reduce the risk of this during long assignment editing sessions, it is recommended that you periodically click

the **Finish** button, then select your assignment from the main **Assignment Editor** list of assignments to start a new editing session.

3.7 Special Cases

Deleting Assignments

You can select and delete assignments in the main **Assignment Editor** window. If there are grades associated with an assignment, and you rename or delete the assignment, a copy is made. Also, results continue to be available through individual student records. To learn more about the Gradebook, see *Chapter 4: Gradebook* on page 43.

Shared Assignments: Saving Your Changes

The following information refers to shared assignments. You may want to return to this section after reading *Shared Classes* on page 53.

When you complete changes (by clicking **Finish** in the **Review & Finish** tab) in a shared assignment and change the Assignment Name, your copy of the assignment automatically appears in the Assignment List of the **Assignment Editor Main Menu**.

Your assignment appears under its new name in the Assignment List. Note that the original assignment, inherited from the shared or template class, also appears in the list.

If you do not want the *original* assignment to appear, remove it from view.

- In the **Assignment Editor** main menu, click the **hide** option available on mouse rollover of the assignment name.

4 Gradebook

4.1 Overview

Maple T.A. automatically stores assignment session scores in the **Gradebook**. The Gradebook stores information for each student, such as the assignment start time, the time spent on the assignment, and the individual assignment question performance.

The Gradebook allows you to:

- View, analyze, and report scores and statistics for students, assignments, and question items
- Review and edit student results
- Create reports organized by student, assignment, or by question
- Export grades to comma-delimited, Microsoft® Excel, or XML files

To access the Gradebook:

- From the **Class Homepage**, click **Gradebook** and select **Open**.

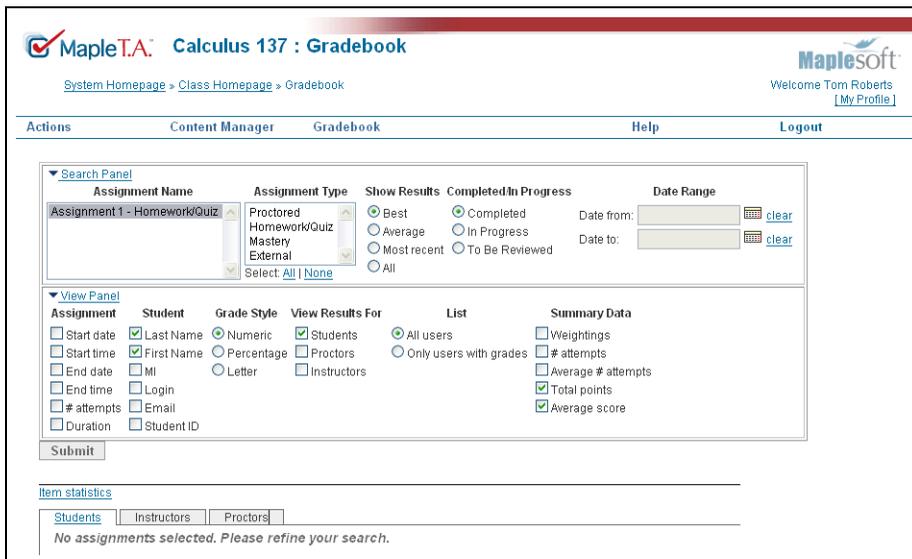
4.2 Gradebook Views

The Gradebook provides three views of assignment data: by student, by assignment, and by assignment item or question.

- To view the grades for an assignment, select an assignment in the search panel and select Submit. The results are displayed below the Search and View panels.

- To view summary statistics for each assignment, click the link to a particular assignment in the student results table. From this view, you can see summary statistics for each question on an assignment.

Figure 4-A Gradebook



Maple T.A. Calculus 137 : Gradebook

System Homepage > Class Homepage > Gradebook

Welcome Tom Roberts [My Profile]

Actions Content Manager Gradebook Help Logout

Search Panel

Assignment Name	Assignment Type	Show Results	Completed/In Progress	Date Range
Assignment 1 - Homework/Quiz	Proctored Homework/Quiz Mastery External	<input checked="" type="radio"/> Best <input type="radio"/> Average <input type="radio"/> Most recent <input type="radio"/> All	<input checked="" type="radio"/> Completed <input type="radio"/> In Progress <input type="radio"/> To Be Reviewed	Date from: <input type="text"/> <input type="button" value="clear"/> Date to: <input type="text"/> <input type="button" value="clear"/>

Select All | None

View Panel

Assignment	Student	Grade Style	View Results For	List	Summary Data
<input type="checkbox"/> Start date <input type="checkbox"/> Start time <input type="checkbox"/> End date <input type="checkbox"/> End time <input type="checkbox"/> # attempts <input type="checkbox"/> Duration	<input checked="" type="checkbox"/> Last Name <input checked="" type="checkbox"/> First Name <input type="checkbox"/> MI <input type="checkbox"/> Login <input type="checkbox"/> Email <input type="checkbox"/> Student ID	<input checked="" type="radio"/> Numeric <input type="radio"/> Percentage <input type="radio"/> Letter	<input checked="" type="checkbox"/> Students <input type="checkbox"/> Proctors <input type="checkbox"/> Instructors	<input checked="" type="radio"/> All users <input type="radio"/> Only users with grades	<input type="checkbox"/> Weightings <input type="checkbox"/> # attempts <input type="checkbox"/> Average # attempts <input checked="" type="checkbox"/> Total points <input checked="" type="checkbox"/> Average score

Submit

Item statistics

Students | Instructors | Proctors

No assignments selected. Please refine your search.

Generating Reports

You can change assignment weighting, grades, or add comments from within a generated report of an assignment or test.

To generate a report in the Gradebook:

1. In the **Search Panel**, select the assignment(s) to include in the report.
 - To include more than one assignment, press the **CTRL** key and click the assignments.
 - To include all assignments, select **All**.
2. Specify the search criteria from the following options:
 - **Assignment Type** - To specify a single type of assignment from Proctored, Homework/Quiz, Mastery, and External.
 - **Show Results** - To display results, for example, best or most recent.
 - **Completed/In Progress** - To display only Completed, In Progress, or To Be Reviewed assignments.
 - **Date Range** - To specify date range. Assignments completed within that date range will be included in the report.

3. In the **View Panel**, select the data to include in the report from the following options:
 - **Assignment** - To display the date and time the assignment was started and finished, the time required to complete, and the number of attempts.
 - **Student** - To display student information, such as first and last name, middle initial, login and password, email address, and student ID.
 - **Grade Style** - To indicate presentation style for the grade.
 - **View Results for** - To display statistics for student, proctors, or instructors (multiple items can be selected simultaneously).
 - **List** - To display all users, or only users with grades.
 - **Summary Data** - To display the weightings information, number of attempts and average number of attempts, total number of points, and average score.
4. Click **Submit** to generate the report.

4.3 Student Statistics

Figure 4-B Student Statistics

Item Statistics

Students | Instructors | Proctors

Assignme...

Last Name	First Name	Grade	Total
Average Score		2.09	
Total Points		3	3
Van Schepan	Craig	2	2
Richardson	Scott	2.25	2.25
Johnson	Steve	1	1
Davis	Michelle	1.75	1.75
Metcalf	Judith	2.75	2.75
Peters	Jon	2	2
Weber	Ben	3	3
Oakley	Denise	2	2
Smith	Joan	3	3
Delaily	Cory	0.25	0.25

Export options: [CSV](#) | [Excel](#) | [XML](#)

From the generated report, you can view a student record report, change the weighting for assignments, and change grades.

To view a student record report, click on the first or last name of a student in your generated report. The student record report contains the following details about the student: login, email, student ID, number of completed assignments, and number of active assignments. The student's best and

average scores are displayed for each assignment, as well as the number of attempts. The overall class best score, average score, and number of attempts are displayed for comparison purposes, as well as the total points for the assignment.

Additional information about each assignment session is displayed: start and end time and date, and duration.

Assignment Weighting

To set weightings for each assignment, generate a report with the Weightings option selected, and then click the **Weighting** link in the report. You can set weighting for each assignment with respect to the cumulative grade for the class. Enter the weighting for each assignment, with the total for all assignments equal to 100%. You can Lock individual assignments to prevent their weighting from being adjusted.

Additionally, you can change the total points of the assignment. If, for example, one question was clearly too difficult in comparison to the rest of the assignment, you can override the total points, making the assignment out of 9 instead of 10 points.

The **Zero** button sets all weightings to 0% and the **Reset** button resets the weightings to the original settings.

Changing Grades

From a generated report, you can change a student's grade. You may change a student's grade for several reasons:

- The system does not automatically grade essay questions, so you must enter a grade for any essay questions included in your assignment.
- You might choose to raise a student's grade based on effort, improvement, or other subjective measures.
- You might choose to apply a curve, based on the performance of the entire class.

Figure 4-C Student Record

Results for Ben A Weber:

▼ [Ben A Weber](#)

Login: bweber
Email: bweber@royalcollege.com
Student ID: 98109892
Assignments completed: 1
Assignments active: 0

Assignment 1	
Best score	3
Avg score	3
# Attempts	1
Class best score	3
Class avg score	2.09
Class # Attempts	11
Total Points Available	3

Assignment Name	Score	Start	End	Duration
Assignment 1	Details...	3	5/7/07 1:00 PM	5/7/07 1:12 PM 12 min

To change a student grade:

1. In the resulting report, click the student name. The student record opens as shown in Figure 4-C.
2. Beside each assignment is a link called **Details**. Click this link to display the assignment results.
3. Edit the grade in the **New Grade** field.
4. Optional. Add comments in the **Comment on Grade** box. These comments are strictly for your records; they are not visible to the student.
5. Optional. Add comments in the **Instructors Comment** box. Students see these comments when they review their performance on the test. You can add personalized comments to help individual students understand their scores and master the material.
6. Click **Update** at the top of the page.
7. Click **Submit** to regenerate the statistical information.

4.4 Assignment Statistics

From the generated report, you can view details about the assignments.

To view assignment details, click on one of the assignment links at the top of the student report table.

Figure 4-D Assignment Link

Last Name	First Name	Grade	Total
Average Score		2.09	
Total Points		3	3

The following details are displayed: original and current total points, date last modified, class average, number of attempts, average number of attempts, and number of active assignments. Details about the assignment setup are displayed as well. A histogram of the assignment statistics are provided.

The student report table now displays the students' performance on each question in the assignment. Click on a question [Q1](#) [Q2](#) [Q3](#) in the table to display the details of the question.

Figure 4-E Assignment Statistics

Details for assignment "Assignment 1"

▼ **Assignment 1**

Original Total Points:	3.0	Current Total Points:	3.0
Last Modified:	5/7/07 12:02 PM	Class Average:	67%
# Attempts:	10	Average # Attempts:	1.0
# Active Assignments:	0		

[Histogram of Student Assignment Scores](#)

Assignment Type:	Homework or quiz	Pass/Fail:	Not pass/fail
Display:	Show 1 question(s) per page	Time Permitted:	No time limit
Start:	No start time specified	End:	No end time specified
Feedback:	Show correct answers on incorrect responses. Always show comments. Show the final grade of the assignment.		

Last Name	First Name	Q1	Q2	Q3	Score
Total Points					
Van Schepan	Craig	0	1	1	2
Richardson	Scott	1	1	0.25	2.25
Johnson	Steve	0	1	0	1
Davis	Michelle	0	1	0.75	1.75
Metcalf	Judith	1	1	0.75	2.75
Peters	Jon	0	1	1	2
Weber	Ben	1	1	1	3
Oakley	Denise	0	1	1	2
Smith	Joan	1	1	1	3
Delaily	Cory	0	0	0.25	0.25

4.5 Item Statistics

The system collects statistical data on the questions used in your assignments. It can automatically produce various statistical analyses based on item usage and student performance.

View item statistics by clicking on the **Item Statistics** link below the Search Panel. Statistical information for each question includes the success rate, p-Value, d-Value, number of times the question was answered, the number of times the question was answered correctly and incorrectly, and if any partial marks were given.

Additionally, for non-permuting, non-algorithmic multiple choice questions a chart is automatically displayed with the frequency each choice was selected.

The following is a sample report covering a single assignment.

Figure 4-F Item Statistics

▼ Assignment 1								
Question	Description	Success rate	p-Value	d-Value	Count	Correct	Partial	Incorrect
1	Mean Value Theorem	0.4	0.4	0.571	10	4	0	6
2	Addition	0.9	0.9	0.333	10	9	0	1
3	Even Numbers	0.7	0.5	0.714	10	5	4	1

4.6 Add External Assignment

The Gradebook gives you the ability to add the marks of an assignment that is not in the system. To add the marks of an external assignment:

- From the **Class Homepage**, click **Gradebook** and select **Add External Assign.**
- Enter the assignment name, total points, and a passing score in the appropriate fields.
- Enter a score for each student and, optionally, a comment.
- Click **Save** to finish, or **Save & Add Another**, to add another external assignment.

External assignments are displayed in the gradebook with other assignments.

5 Class Management

5.1 Overview

Various system tools enable you to manage your class and exchange course material between your class and others with Maple T.A. You can perform the following tasks.

- Register and manage proctors for your course
- Edit your instructor profile
- Lock or unlock access to student registration for your class
- Share your assignments and question banks with other instructors
- Work with files on your class Web site
- Create and deploy course modules

In this chapter, the following topics are covered.

- Class Roster
- Uploading files to your class Web site
- Shared classes
- Course modules

5.2 Class Roster

Before the **Gradebook** can begin tracking student performance, it must have a student roster. You can create a roster by:

- Uploading a roster.
- Allowing students to register themselves for your course.

Uploading a Class Roster

You can upload a class roster from your **Class Homepage**. The system uploads a comma-separated file (for example, *.csv) that has one line for each student and has the following format:

first name, middle initial, last name, student ID, email address, login, password

- The fields that are underlined are required.
- First Name must be at least one alphabetical character.
- Middle Initial must be no more than one alphabetical character.
- Last Name must be at least one alphabetical character.
- Student ID must be at least five alphanumeric characters
- Login and password are optional, but if a login is provided for a student, a password must also be provided.
- If no login is provided the system generates a login and password, which is displayed on the next page. You must print this page. If it is not printed, the automatically generated login and passwords will be lost.
- If you have a null required field, for example, the student did not provide a middle initial, use two consecutive delimiters.

To upload a class roster:

Important: Create your class roster as a text file and save it.

1. From the **Class Homepage**, click **Actions** and select **Administer Users**. From the **Actions** menu, select **Upload Roster**.
2. To locate your class roster, click **Browse**. Navigate to the file and click **Open**.
3. Click **Submit**. A list of each student's name, ID, and email is displayed.
4. Click **Upload Roster**. A roster upload summary is displayed.

Student Registration

Students can register for your class using the **Find classes open for registration** link on the **System Homepage**. The student selects the class he or she wants to enroll in, and clicks **Register**. The student then clicks **Confirm** and must complete the form on the **Student Registration** screen. You can lock access to this form of registration from your class homepage. From the **Actions** menu, select **Class Info**, click **Edit** and select the **Registration Locked** check box.

5.3 Uploading Files

In conjunction with your **Class Homepage**, your class also has a Web site folder on the system that you can use to store images and other resource material (such as Maple library files) used in your question banks. The **Website Editor** provides a list of the Web site content and gives you options for uploading, organizing, and deleting files.

To manage files on your class Web site:

- From your **Class Homepage**, click the **Content Manager** menu, and select **Website Editor**.

You can upload multiple resource files to your class Web site if you package them in a compressed zip file first. The **Zip Archive** option is useful if you have many files to upload.

To upload a file:

1. Click the icon next to the instruction **upload file(s) to this point...**
The **Website Editor/Upload Files** screen is displayed.
2. Click **Browse** to locate and select the file.
3. Click the **Single File** or **Zip Archive** radio button. The system uploads the file directly to your class Web site, with the name you specify. (The default name is the name of the file on your computer.) In the case of a zip file, the program extracts all the files from the selected zip file and uploads them to the Web site. (If the selected file is not a zip file, the program does not upload a file.)
4. Click **OK** to perform the upload and return to the list of files on your Web site. The uploaded file appears with the list of files in the **Website Editor**.

Important: The default maximum size of a file that can be uploaded is 2 MB. This maximum size can be set in the Maple T.A. `system.properties` file. Contact your system administrator to adjust this size. If you receive a message informing you that your upload exceeds the server limit, contact your system administrator.

Note: For maintenance and sharing purposes it is recommended that you create a folder within the **Website Editor** and upload files to that folder. See *Additional Notes* on page 59.

5.4 Shared Classes

You can share your question banks, resources, and assignments with other instructors.

- Class sharing is an ideal way to manage multiple class sections of a large course using common question banks and assignments, ranging from practice sessions to exams.
- Shared classes can also contain unique question banks and assignments that are not part of the parent class.

When you share a class, you create a single *parent class* whose question banks and assignments are cloned. The question banks and assignments are inherited by each *child class* instance created when registering a copy of the parent.

Question banks and assignments inherited from a parent class are always identified by the shared class icon, which appears beside the assignments and question banks in the Assignment List and Question Bank List.

Figure 5-A Inherited Assignment Icon

Maple T.A. Calculus 137 : Assignment Editor

System Homepage > Class Homepage > Assignment List

Welcome Tom Roberts [My Profile]

Actions Content Manager Gradebook Help Logout

New Synchronize

Select an assignment name link to edit that assignment
While an assignment is being edited it will be locked. Please ensure that you exit the assignment editor by using the page navigation buttons.
Failure to do so will leave the assignment in a locked state.

Assignment Name	Points	Type	Availability	Modified	Active
 1 Demonstration of the Maple-graded Question Type	25.0	Practice	Unlimited	6/20/05	0
 Demonstration of Question Types	63.0	Practice	Unlimited	6/20/05	0
 Assignment 1	3.0	Homework/Quiz	Unlimited	5/2/07	0

Creating a Shared Class

To share the contents of your class with other instructors:

1. From the **Class Homepage**, click the **Actions** menu, click **Class Info**, and select **Edit**.
2. Select the **Featured Class** check box.
3. Click **Submit** to save your changes.

Other instructors can create a copy of your class, including your question banks and assignments, by creating a new class and choosing your class from the **Inherit Content from** list.

To remove class sharing:

1. From the **Class Homepage**, click the **Actions** menu, click **Class Info**, and select **Edit**.
2. Clear the **Featured Class** check box.
3. Click **Submit** to save your changes.

Shared Class Content Updates

In general, changes to question banks or assignments in the parent class automatically update the copies of the question banks or assignments in your child classes. However, if you edit and then save your copies of the inherited materials using their original names, you do not receive updates.

The following applies to changes you make to inherited question banks, whether you make changes to them individually using the **Question Bank Editor** or if you use **Course Modules** to make global changes that affect inherited question banks. (Course Modules are described in the next section.)

You break the link to the parent class version of the question bank, if you:

- Edit a parent question bank and then **Save** it using the original name as the parent class.
- Install a course module that has a new version of a question bank with the same name as a question bank in the parent class.

To refresh the content of your class to match that in the parent class or to restore the link to the parent class version of the content, you must do **one** of the following:

- Save your new, edited question bank under a different name and then delete the version that has the same (original) name as the original in the parent class question bank.
- Delete the edited/modified version of the question bank.

The system automatically restores the parent class version of the matching question bank.

Table 2: Editing and Naming Implications

Edits	Link Status	Results
No edits to Question Bank and Assignments	Link maintained	Changes from the parent class are visible in the child class
Edit a Question Bank and save it under a <i>new</i> name	Link maintained	Changes from the parent class are visible to the child class but do not affect the edited, child Question Bank
Edit a Question Bank and save it under the <i>same</i> name	Link is disabled	Changes from the parent class are not visible to the child class
Upload a course module containing a Question Bank with the same name as one in the parent class	Link is disabled	Changes from the parent class are not visible in the child class

5.5 Course Modules

Course Modules allow you to share your class content with others, including related assignments and Web resources (for example, images) used by your questions and assignments.

When you create a course module, the system packages the class elements you have identified, producing a single, zip file that can be archived or redistributed to other instructors using the system.

Once a course module is distributed and installed in a new class location, it does not maintain any synchronization with the original source class or its materials.

Note: Inherited content is not included in child class course modules.

Creating a Course Module

To create a new course module:

1. From the **Class Homepage**, click **Content Manager** and select **Course Modules**.
2. Click **Create**.
A table displays all the question banks, assignments, and Web folders with resources (for example, image files) for your class.
3. Select the course components to include in your new course module.
You can highlight multiple items in a list using Shift-click (for contiguous selections), CTRL-click (for multiple individual selections), or **Select All**.
4. Use the arrow button to add your selections to the list of included elements for your new course module.
You can include any combination of question banks, assignments, and Web folders in your selected list.
5. To select Web resources (for example, images and other files that are referenced by your question banks and assignments), select the folders that contain your resources. Subfolders are automatically selected.
6. When you are satisfied that the list on the right contains all the elements to include in your new course module, click **OK**.
7. Specify a name for your course module. Optionally, you can enter descriptions for each course component. You can also select descriptive names for any Web folders you have selected. Question bank and assignment names cannot be changed.
8. Click **OK** to create your course module according to the specifications you have indicated. Notice that the new course module is added to the bottom of the list of installed course modules for your class.

Note: Click **Cancel** at any time to return to the Course Modules Main Menu.

Exporting a Course Module

This is a required step for redistributing or installing your course into a new class.

To export a course module:

1. In the **Course Modules** main page, select the course module to save to your local machine by selecting the check box adjacent to it in the list of available modules in your class.
2. Click the **Export** button.
The next page displays the related URL information that is referenced in the course module you have selected. The following message about the URLs is displayed.

Your question banks are scanned for URLs beginning with the following strings. These references are replaced with a system-independent string that makes your module re-locatable to classes on other servers.

3. Click **OK** to continue. Typically you do not need to make changes to the system default behavior for URL replacements.
4. Click the link to download the course module.
5. Click **Return** to return to the Course Module main page.

When the file download/save operation is complete, you are returned to the **Course Modules** main menu.

Importing and Installing a Course Module

The advantage of using course modules to manage content between classes on one or more Maple T.A. servers is that the question banks, assignments, and Web resource folders are entirely portable and can be installed in a new class very easily.

In the following discussion, the term ***destination class*** refers to the class in which to install the course module and the term ***source class*** refers to the originating class for the course module contents.

To install a new course module into the destination class:

1. Ensure that you have access to the saved course module from the source class on your hard drive, a network drive, or an Internet resource.
2. Click the **Import** button from the **Course Modules** main menu.
3. To select a course module, click **Browse**.
4. In the **Choose File** dialog, select the course module file on your hard drive, a network drive, or an Internet resource, and click **Open**.

Note: The course module file must be in original zip format.

5. Click **Import** to initiate the file upload.
Elements contained in your uploaded course for which names match elements previously contained in your class are highlighted in yellow background with red type, with a warning message:

WARNING: The course module you have uploaded contains resources which will overwrite components that you already have installed. The components which will overwrite your existing course components are highlighted in the table below. If you do not want these course components erased and replaced with new ones, press Cancel, or ensure that they are not selected in the table below. To proceed, select the components that you want to install from the table below and press Install.

6. At this point you can install the new components in your class, overwriting the original components. You can also select or clear other elements of the course module for installation into your class. The default installation behavior is to install no course module elements; however, by selecting individual parts, you can choose the specific elements to install.

Click **Install** to copy and install all the selected course module elements into your destination class.

The new course module appears in the list of available course modules for your class, and all of the elements you selected appear in their respective areas throughout your class Web site. Question banks are listed in the **Question Bank Editor**, assignments appear in the **Assignment Editor**, and Web resources are displayed in the **Website Editor**.

Additional Notes

The base class Web site folder, `web_folders` is the most common element that is flagged as a duplicate. This is a common default destination for many Web resources; however, because it is a folder name established for every course, you may already have saved your own resources to the class Web site folder in the destination course. If this is the case, you can either:

- Create a new subfolder in your destination class Web site and reinstall your resources in that subfolder.
- If you have access to the source class for the course module, you can return to the course module's source class and move the resources in the base folder of that class Web site to a subfolder, and then recreate the course module so that it will not match with your destination class folders upon upload.

Note: If you change the location of your resources, make sure to update the reference to them in questions appropriately.

Ensure the following file and system requirements are met.

- The course module you upload must be in zip format.
- If you attempt to upload a zip file that is not a course module, the system generates the following error message and you must make another attempt:

This file does not appear to be a course module (it has no manifest file).

- Each server has a maximum file size setting for uploads that is established by your system administrator. (The system default setting is to allow uploads of up to 2 MB.) If your file upload repeatedly times out,

or if you receive a message informing you that your upload exceeds the server limit, contact your system administrator.

Inheritance of Question Banks and Assignments

If you install a course module that has a new version of a question bank with the same name as the question bank in the parent class, you permanently break the link to the parent class version of the question bank.

To refresh the content of your class to match that in the parent class or restore the link to the parent class version of the content, you must do **one** of the following.

- Save your new, edited question bank under a different name.
- Delete the edited/modified version of the question bank.

The parent class restores the matching question bank automatically.

Note: If you modify question banks or assignments that you inherit from a shared parent class, there is no risk that the parent class version will overwrite your modified version, unless you specifically delete the modified question bank or assignment from your child class. This means that if you make changes to the inherited question banks or assignments and save them to the original name, your changed versions sever the relationship with the parent asset and you will not receive any future updates from the parent class automatically. Therefore, you must inform the instructor in your shared parent class if you want to be notified of changes to parent class question banks and assignments.

6 Additional Resources

6.1 Maple Application Center

The Maple Application Center™ contains free course modules and resources for download. Many topics are covered, for example, vector spaces, symmetric matrices, orthogonality and inner products, matrix algebra, optimization, DEs, functions and relations, rational expressions, inner product spaces and eigenspaces, and more.

To access Maple T.A. resources at the Maple Application Center:

1. In your browser, navigate to <http://www.mapleapps.com/>.
2. Perform a search. Set the Application Type to “Maple T.A.” or a specific resource you require, for example, “Maple T.A. Question Banks.”

Index

Symbols

\$ variable symbol, 18

A

adding

question in question bank, 9

algorithmic variables

specifying, 17

assignment editor

overview, 29

vs. question bank, 29

assignments

course module inheritance, 60

create new, 31

deleting, 41

finishing, 40

introduction, 1

locked, 31

mastery, 36

naming, 32

saving, 40

shared, 41

shared class inheritance, 60

status, 40

study session, 36

types, 34

assignment statistics

overview, 48

assignment tab

choose name, 32

review & finish, 40

select questions, 32

set policies, 33

B

Boolean value

in Maple code, 20

browser buttons

navigating, 5

C

changing grades, 46

child class, 55, 60

class

create new, 3

create shared class, 4

registration form, 4

Class Homepage, 2

instructor use of, 2

links, 3

menu items, 3

class management overview, 51

class roster

overview, 51

text file, 52

uploading, 52

course module

creating, 57

exporting, 57

file server requirements, 59

installing, 58

overview, 56

uploading, 58

creating

course module, 57

Maple-graded question, 21

shared class, 4, 54

D

deleting

assignments, 41

destination class

definition, 58

E

edit

- feedback, 18
- mastery policies, 37
- student information, 49

email notification, 38

example

- question types, 12
- randomly determined parameters, 16

F

feedback, 37–38

- in question, 18

file

- maximum size, 53
- upload, 53

final grade, 37

finishing assignments, 40

G

generating reports, 44

gradebook

- add comments, 47
- add external assignment, 49
- edit student information, 49
- generating reports, 44
- overview, 43

graded assessments, 34

grouped questions, 33

guidelines

- Maple code, 20

H

headers

- advanced button, 32

help system

- accessing, 5

hints

- set in question bank, 37

HTML

- in questions, 14

I

individual questions, 33

inline questions

- list question, 23
- visual editor, 12

insert

- plot, 23

installing

- course module, 58

question bank, 11

instructor

- logging on, 2

item statistics

- overview, 49

M

Maple-graded question type

- guidelines, 20

- overview, 20

Maple plot

- insert, 23

mastery assignment, 36

maximum

- attempts, 39
- file size, 53

merge questions, 32

multiple choice

- advanced question, 14, 16

N

naming

- assignments, 32

navigating, 5

- crumb bar, 5

navigating crumb bar, 5

new assignment, 31

O

online connection, 39

opening

- question bank on hard drive, 27

P

passing score

- setting, 38

plot

- insert, 23

plot as algorithmic variable, 23

plotting

- student response, 22

proctors

- introduction, 2

Q

question bank editor

- navigate to, 8
- overview, 8

Question Bank Editor>Add Question

- Screen, 10

question banks

- adding a question, 9

- adding a topic, 9
- backing up, 27
- course module inheritance, 60
- importing, 27
- introduction, 1
- overview, 7
- process, 8
- saving & installing, 11
- shared class inheritance, 60
- starting new, 9
- topics, 7
- question designer
 - introduction, 12
 - question types, 13
 - response area, 12
- questions
 - per page, 38
 - selecting, 32
- question type
 - examples, 12
 - Maple-graded, 20
- R**
- removing
 - shared class, 55
- requirements
 - course module, 59
- response area, 12
- response area properties panel, 13
- roster, 52
- S**
- saving
 - assignments, 40
 - course module, 57
- scheduling assignments, 39
- scramble questions, 32
- selecting
 - questions, 32
- semicolon
 - in algorithmic variables, 18
 - in Maple-graded questions, 20
- send reports, 38
- set policies tab, 37

- setting policies, 33
- shared class
 - creating, 54
 - removing, 55
 - updates, 55
- shared parent class, 60
- source class
 - definition, 58
- students
 - class homepage, 1
- student statistics
 - add comments, 47
 - assignment weighting, 46
 - changing grades, 46
 - overview, 45
- study session, 36
- system homepage, 2

T

- test and review question, 16
- text file
 - class roster, 52
- time limit, 38
- tool tips
 - Main Menu, 2
- topic
 - in question banks, 9
- types of assignments, 34

U

- uploading
 - class roster, 52
 - course module, 58
 - issues with question banks, 28
 - procedure for class roster, 52

V

- variable symbol, 18
- visual editor
 - overview, 12

W

- Website editor, 53

