Student Guide: Maple T.A.™

Amanda Garcia

University of Ottawa
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Introduction
Chapter 1
Student Guide

1.1 Overview of Maple T.A.

1.1.1 Class Homepage

Each course has its own Class Homepage (see Figure 1.1) from which the instructor’s assignments are distributed. The instructor determines the rules and properties of the assignments as well as the access policy.

Figure 1.1: Site Class Homepage

1.1.2 Let’s Start an Assignment

The list of assignments is accessible from the page Class Homepage. To begin, click on the title of an assignment, which is a link. Note that this link is active only during the specified access period: you may be able to see the title of the assignment before it is accessible, or after its due date, but you will not be able to open it. You must complete and submit your
assignment during its access period. In Section 1.2, we give a comprehensive guide for doing Maple T.A. assignments.

Each assignment has an access policy, which you can read by clicking on policies (located beside the title of the assignment). For example, in rare cases you might have a time limit for an assignment (measured from when you open the assignment); this information would be given here, and also at the beginning of the assignment. As another example of an access policy, the instructor may specify that “Assignment #1” must be completed before “Assignment #2” may be opened.

1.1.3 Writing an Assignment

The answers in an assignment can be written in Symbol Mode (See Section 1.3.2) or in Text Mode (See Section 1.3.1). In Symbol Mode, you use the Equation Editor to write your solution, and in Text Mode, you write your answer using calculator syntax. You are free to choose the mode you like best; many questions also have a preview icon (shaped like a magnifying glass) which shows you what you typed, in readable form.

Click on the Hints for more instruction on how to answer the question and for some typesetting tips. On some assignments, you can also click on How did I do? in the top right corner, which will tell you if you got the answer right or not, and let you try again.

When you’ve completed the assignment, click on the Grade button to submit it. If there are syntax errors or if some questions have not been answered, Maple T.A. will list the problems; you then have an opportunity to go back and fix these mistakes. It won’t tell you if the answers are correct, though. Click Grade again to submit the assignment.

1.1.4 To display the Grade of an Assignment: many Gradebooks

It is also possible to see your results in Maple T.A.. From the Class Homepage, select the option View Past Results in the menu Gradebook in the top left corner. You can sort on your results by various criteria; select some and click Submit to see the requested results. You will be able to see your grade for an assignment after you submit it, although you will not be able to access the detailed evaluation and solution until after the due date of the assignment.

Some assignments allow more than one trial. In this case, you submit your assignment, and check your grade inside Maple T.A.; if you did not get a perfect grade, you may redo the assignment (Maple T.A. will give you slightly different questions) to try to do better. It is normally the best mark out of all the trials that is recorded in the Section My Grades of Blackboard as your grade for the assignment. To see the note obtained for each trial, you must use the Gradebook of Maple T.A..
1.2 Assignments

1.2.1 Types of Assignments

There are five types of assignments whose general properties are given below. More specific information will be provided by the instructor if necessary.

**Homework or Quiz** (This is the usual type of assignment you will encounter.) These assignments can be paused and later resumed (within the access period). You submit the entire assignment at once; *Maple T.A.* will warn you if there are missing answers or if there are syntax errors. Depending on the rules set by the instructor, you may be allowed many trials for an assignment to improve your grade. The result of this type of assignment is recorded.

**Proctored** (This type of assignment is designed for tests in a computer lab.) The authorization of a proctor is required before you can begin. Your mark is only made available after a fixed deadline, and only one trial is allowed.

**Anonymous Practice** (This type of assignment is designed to let you practice.) Like regular assignments, you submit the entire assignment at once, and you may be allowed several trials. However, your mark is not recorded, and if you pause the assignment, you cannot resume where you left off.

**Mastery** (This type of assignment gives you immediate feedback and lets you work your way towards more challenging problems.) Questions are submitted one after the other, and each question is graded immediately. *Maple T.A.* gives you a progress report, and records the results of your first trial in *Gradebook*. You may repeat the assignment for practice, but the mark would not be recorded.

**Study Session** This type of assignment is identical to the type Mastery but the results are not recorded; it is just for practice.

1.2.2 Beginning an Assignment: More Detail

The list of assignments is posted in a table on the *Class Homepage* (See Section 1.1.1). The table shows the title of the assignment, the maximum grade, the type of assignment, the accessibility period and any access policies for the assignment.

If the instructor has provided an access policy or rules for the assignment, the link **policies** will appear in the last column of the table. Clicking on this link will open the window *Instructor’s Policies* (See Figure 1.2) which displays the restrictions and rules for the assignment.

In the example of Figure 1.2, the instructor fixed the passing grade to 2 out of 4 points and has set a time limit of 35 minutes to write the assignment (from the moment it is opened). Moreover, access to the assignment is restricted to students who have passed the assignments “Test1” and “Test2”, or who have tried these assignments at least five times.
Instructor's policies:

<table>
<thead>
<tr>
<th>Time Limit:</th>
<th>35 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passing Score:</td>
<td>2/4.0</td>
</tr>
</tbody>
</table>

A student may only take this test if he/she:

1. Has passed "Devoir test 1"
2. Has made five or more attempts at "Devoir test 1"
3. Has passed "Devoir test 2"
4. Has made five or more attempts at "Devoir test 2"

**Access Period**

The title of an available (accessible) assignment is given in blue; it is a link to the assignment. You cannot access an assignment outside of its access period, even if you began it during its access period.

**Time Limit**

If a time limit as been set to write an assignment, Maple T.A. will warn you of this fact when you begin the assignment. The time given is real time; clicking on the button [Quit and Save] will not stop the clock. The assignment ends when you click [Grade], or when the time limit is reached, whichever comes first. Maple T.A. will give you some warning before time runs out (See Figure 1.3).

Figure 1.3: Warning window

![Warning window](image)

You have five minutes remaining. Once the time for your assignment has expired, you will still be able to submit the question you are currently working on, and to have your test graded. But you will not be able to work on any other questions, or to log back in to this assignment.

When the time limit has been reached, all your answers up to that point are submitted for evaluation.
Passing Grade

The instructor may choose to fix a passing grade of an assignment, which can be used to determine access policies, as above. Additionally, the instructor may provide feedback based on your mark relative to the passing grade; you can access this in the field Feedback: Grade Report.

1.2.3 Possible Actions

Let’s now consider the buttons and actions available to you when you have opened an assignment. Many are along the top of the page, others are near the question.

The following actions are always available.

**Grade**  Tell Maple T.A. to evaluate the answers to the assignment, and will warn you if some answers are missing or contain syntax errors. You can either fix these, or proceed to evaluation. In certain types of assignments (See Section 1.2.1) you must grade each question before proceeding to the next.

**Print**  This appears after the due date. It allows you to print the evaluation and customized solution to your assignment.

**Help**  Opens the student guide if you select Student. Technical information about Maple T.A. is available by selecting About.

**Quit & Save**  Saves the answers that have been provided until now and quits the assignment. You can return to the assignment later to complete it.

We provide in the following sections the actions specific to each type of assignment.

**Assignment of type Study Session**

For the assignments of type Study Session, the following actions are available:

**Try Again**  Gives you another try at the same question.

**Try Another**  Gives you another, similar, question.

**Hint**  Displays some information provided by the instructor; this is often typesetting information, but might also be mathematical in some cases.

**See Solution**  Displays the detailed solution.
Assignment of types Anonymous Practice and Homework/Quiz

For the assignments of types Anonymous Practice and Homework/Quiz (the usual one), the following actions are available:

**Back**  To go back to the previous question.

**Next**  To jump to the next question.

**Question Menu**  This menu displays a list of all the questions in the assignment, and lets you jump to any of them.

**View Details**  Appears after the due date. Gives a detailed evaluation of your answers.

**View Grade**  Appears after submission. Gives your grade and the instructor’s predetermined comments, if any.

**Hint**  Displays some information provided by the instructor; this is often typesetting information, but might also be mathematical in some cases.

**How did I do?** (This feature will not be available for all assignments; it depends on the instructor’s policies.) Tells you if your answer is correct or not, but provides no solutions. You can redo the question as many times as you want to.

Assignment of type Mastery

For the assignments of type Mastery, the following actions are available:

**Next**  To jump to the next question.

**Finish Session**  Ends the session and provides a table of your results.

**View Details**  Appears after you’ve selected Finish Session and gives a detailed evaluation of your assignment.

1.2.4 Proceed with an Interrupted Assignment

If you begin “Assignment Y” after having interrupted “Assignment X” without completing and submitting this last one, then a window will pop up informing you that “Assignment X” has not been submitted (See Figure 1.4).

In this window, there will be three options.

1. **Resume my old ”Assignment X”**  This let you resume “Assignment X” where you left off.
1.3 How to Write an Answer

You will often have to enter answers containing mathematical expressions. Maple T.A. offers two modes to submit your answer: **Text Mode** and **Symbol Mode**.

There are two ways to change the mode to write a solution. You can use the option **Change Entry Style** under the statement of the question (See Figure 1.5).

This may also appear as an icon **Change Entry Style** next to the field where you write the answer (See Figure 1.6).

---

2. **Grade my old ”Assignment X”** This forces Maple T.A. to grade “Assignment X” based on what you had previously completed. The results of the assignment are posted.

3. **Grade my old ”Assignment X” and continue to my new ”Assignment Y”** This does the same as the above, but instead of seeing your grade, you proceed to “Assignment Y”.

For the assignments of types **Proctored** and **Mastery**, only the first two options are available.

---

1.3. How to Write an Answer

You will often have to enter answers containing mathematical expressions. Maple T.A. offers two modes to submit your answer: **Text Mode** and **Symbol Mode**.

There are two ways to change the mode to write a solution. You can use the option **Change Entry Style** under the statement of the question (See Figure 1.5).

Figure 1.5: Option Change Entry Style

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This may also appear as an icon **Change Entry Style** next to the field where you write the answer (See Figure 1.6).
In either case, a new window will pop up to let you choose your entry mode (See Figure 1.7). Click the button beside the desired node and then click [OK]. To cancel this action, click on the button [Cancel]. The option [Change Entry Style] is only available for some types of questions: those requiring a mathematical expression for answer.

1.3.1 Writing Answer in Text Mode

The default mode to answer questions is **Text Mode**. It uses a syntax similar to the syntax of pocket calculators. The keys +,-,\*, /, ˆ and some other commands are used to produce mathematical expressions. A list of the most important commands is given in Appendix 1.3.4.

An example of a well-formatted mathematical expression in **Text Mode** is given by

\[(x^2-2x+1) \cdot 2\sin(x)(x^2+1) \cdot e^{-x^2}\]

For the questions of the type **Maple-Graded**, it is necessary to use the symbol \* for the multiplication:

\[(x^2-2\cdot x+1)\cdot 2\cdot \sin(x) \cdot (x^2+1) \cdot e^{-x^2}\]
Some Advice

The question type, **Maple-Graded** or **Formula**, will determine the acceptable syntax for the answer. Almost all questions will be of type **Formula** and the syntax used to write the solution is the syntax that you normally use for a scientific pocket calculator.

The questions of type **Maple-Graded** accept the syntax used for the scientific pocket calculator but also accept the syntax used by **Maple**. The syntax used by **Maple** is much richer than the syntax used by the scientific pocket calculators. It is also possible to restrict the syntax for the questions of type **Maple-Graded** to the syntax used for scientific pocket calculators only. It is therefore really important to read the instructions for each question to determine the allowed syntax.

The type of questions **Formula**, as the type **Maple-Graded**, accept the symbol * for multiplication. It is therefore preferable to always use this symbol to denote multiplication.

Students must always use in their answer the same variables than those used in the question. For instance, if the correct answer is $t^2 + 1$, then $T^2 + 1$ is considered a wrong answer by **Maple T.A.**.

Improper use of parentheses often produce an error; one must make sure that the entire argument is inside parentheses. For instance, to write $\frac{1}{x^2 + 1}$, you must type $1/(x^2 + 1)$ instead of $1/x^2 + 1$ because this last expression is $\frac{1}{x^2} + 1$.

The argument (or independent variable) of a function must always be between parentheses. For instance, to write $\sqrt{2x}$, one must type `sqrt(2x)` instead of `sqrt 2x` which yields at best $\sqrt{2} x$.

The option [Preview], that can be found below the statement of the question or as an icon beside the answer field, is a link that once selected will display your solution in standard format. Do use this preview option to verify that your written answer is what you intended! Clicking on the link or the icon opens the window **Preview Frame** which displays how **Maple T.A.** interprets the answer you gave (See Figure 1.8).

Attention must also be given to questions requesting a numerical value with a given number of significant digits for the solution. For **Maple T.A.**, $n$ significant digits means that one must round up the number to $n$ digits when counting the digits from the first non-null digit. For instance, 0.03456 to 3 significant digits is 0.0346. The numbers 30.1, 0.0301 and 30.0 have three significant digits while 31 and 3.1 have two significant digits. If there are zeros at the end of the number, **Maple T.A.** assumes that the intention is to indicate that this digits are significant and they are added as significant digits. For instance, if an answer requires 5 significant digits and the answer is 500, then one must give the answer 500.00 to get a correct answer.

**Exemple 1.3.1**
Figure 1.8: Window **Preview Frame**

<table>
<thead>
<tr>
<th>Text to produce</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2x^2$</td>
<td>$2\times x^2$</td>
</tr>
<tr>
<td>$\sqrt{2x}$</td>
<td>$\sqrt{2x}$</td>
</tr>
<tr>
<td>$3</td>
<td>x</td>
</tr>
<tr>
<td>$\ln(x)$</td>
<td>$\ln(x)/x$</td>
</tr>
<tr>
<td>$\frac{x}{\sin(2x^2)}$</td>
<td>$\sin(2x^2)$</td>
</tr>
<tr>
<td>$\frac{\cos(3\pi + x)}{x}$</td>
<td>$\cos(3\pi \cdot x) \text{ or } \cos(3\pi + x)$</td>
</tr>
<tr>
<td>$\frac{1}{x} + 2$</td>
<td>$1/x + 2$</td>
</tr>
<tr>
<td>$\frac{1}{x+2}$</td>
<td>$1/(x+2)$</td>
</tr>
<tr>
<td>$e^i$</td>
<td>$\exp(i)$</td>
</tr>
</tbody>
</table>

### 1.3.2 Writing Answers in **Symbol Mode**

For the **Symbol Mode**, you use the **Equation Editor** to write your answers. To use this tool, right click in the Equation Editor field to get the menu with the mathematics symbols (See Figure 1.9). Left click in the Equation Editor field to hide the menu. It is possible to directly insert some algebraic expressions; for instance, $a \cdot b$ produces $a \cdot b$ and $a^b$ produces $a^b$.

### 1.3.3 Equivalent Answers

Depending on the type of questions asked, **Maple T.A.** can sometimes determine if your answer is equivalent to the correct answer for the question. Here are some examples of equivalent expressions that **Maple T.A.** should accept.

- **Algebraic Equivalence**: The expressions $(x+1)^2$, $x^2+2\cdot x+1$ and $x^2+x+x+1$
are equivalent.

- Equivalent Equations: The equation $y=x+1$ is equivalent to $y-1=x$.
- Numerical Equivalence: $1/2$ is equivalent to $2/4$.
- Unit Equivalence: $100\text{cm}$ is equivalent to $1\text{m}$.

1.3.4 Graphs

Another nice feature that an instructor may permit is to let you have Maple T.A. draw the graph of your answer. In this case, the button \textbf{Plots} opens a window that displays the graph. In some cases, the window will also show you the right answer (in green) and your answer (in red). (See Figure 1.10). If your graph is correct, then you’ll see only the red answer; however, be warned that two graphs could seem to coincide over a small domain but in reality be different!

In other cases, the use of the \textbf{Plots} button is just a feature to help you understand your answer better. If available, this option is accessed by selecting the label \textbf{Plots} displayed under the question (See Figure 1.11).
Figure 1.10: Graph of the incorrect answer provided by the student

Figure 1.11: Window for **Plot**
Appendix A: Constants, Functions and Operators

Table A.1: Symbols used for some constants in Text Mode

<table>
<thead>
<tr>
<th>Name of the constant</th>
<th>Type of Maple T.A. problem</th>
<th>Formula</th>
<th>Maple-Graded</th>
</tr>
</thead>
<tbody>
<tr>
<td>e (Euler’s Constant)</td>
<td>e</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td>$\pi$</td>
<td>$\pi$</td>
<td>Pi</td>
<td></td>
</tr>
<tr>
<td>$i (\sqrt{-1})$</td>
<td>$i$</td>
<td>I</td>
<td></td>
</tr>
</tbody>
</table>

Table A.2: Valid operators in Text Mode for answers requesting a formula

<table>
<thead>
<tr>
<th>Name of the operator</th>
<th>Addition</th>
<th>Subtraction</th>
<th>Multiplication</th>
<th>Division</th>
<th>Exponent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbol</td>
<td>+</td>
<td>−</td>
<td>*</td>
<td>/</td>
<td>a^b</td>
</tr>
</tbody>
</table>

Table A.3: Valid functions in Text Mode for questions of type Formula (if allowed by the instructor) or Maple-Graded

<table>
<thead>
<tr>
<th>Name of function</th>
<th>Symbol</th>
<th>Name of function</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square root</td>
<td>sqrt</td>
<td>cosecant</td>
<td>csc</td>
</tr>
<tr>
<td>Logarithm, base 10</td>
<td>log</td>
<td>cot</td>
<td>cot</td>
</tr>
<tr>
<td>Natural logarithm</td>
<td>ln</td>
<td>arcsine</td>
<td>arcsin</td>
</tr>
<tr>
<td>Absolute value</td>
<td>abs</td>
<td>arccosine</td>
<td>arccos</td>
</tr>
<tr>
<td>sine</td>
<td>sin</td>
<td>arctangent</td>
<td>arctan</td>
</tr>
<tr>
<td>cosine</td>
<td>cos</td>
<td>arcsecant</td>
<td>arcsec</td>
</tr>
<tr>
<td>tangent</td>
<td>tan</td>
<td>arccosecant</td>
<td>arccsc</td>
</tr>
<tr>
<td>secant</td>
<td>sec</td>
<td>arccotangent</td>
<td>arccot</td>
</tr>
</tbody>
</table>

Table A.4: Valid functions for questions of type Maple-Graded only

<table>
<thead>
<tr>
<th>Name of function</th>
<th>Symbol</th>
<th>Name of function</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exponential Function</td>
<td>exp</td>
<td>Integral</td>
<td>Int</td>
</tr>
<tr>
<td>Logarithm, base 10</td>
<td>log10</td>
<td>Derivative</td>
<td>Diff</td>
</tr>
<tr>
<td>Natural logarithm</td>
<td>log</td>
<td>Limit</td>
<td>Limit</td>
</tr>
</tbody>
</table>
## Appendix C: Systems Supporting Maple T.A.

Table C.1: Systems Supporting Maple T.A.

<table>
<thead>
<tr>
<th>Operating system</th>
<th>Version of the operating system</th>
<th>Browser</th>
<th>Hardware (minimal requirements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>Windows 2000, XP, 2003, Vista</td>
<td>Internet Explorer 6.x+, Firefox 2.0+</td>
<td>300 MHz processor, 64 MB RAM</td>
</tr>
<tr>
<td>64-bit Windows</td>
<td>Windows XP, Vista</td>
<td>Internet Explorer 6.x+, Firefox 2.0+</td>
<td></td>
</tr>
<tr>
<td>Macintosh</td>
<td>Mac OS X 10.4.5 or later</td>
<td>Firefox 2.0+, Safari 1.2.1+*</td>
<td></td>
</tr>
<tr>
<td>32-bit Linux</td>
<td>SUSE 10.1, 10.2, 10.3, 11.0, 11.1 Red Hat Enterprise 5.0 Ubuntu 8.04</td>
<td>Firefox 2.0+</td>
<td></td>
</tr>
<tr>
<td>64-bit Linux</td>
<td>SUSE Enterprise 10, 11 Red Hat Enterprise 5.0 Ubuntu 8.04</td>
<td>Firefox 2.0+</td>
<td></td>
</tr>
</tbody>
</table>
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