



# General Course Information for MA 15300, MA 15400, and MA 15900 Indiana University-Purdue University Fort Wayne

## 1. The Course Goals for *College Algebra and Trigonometry* (MA 15300, 15400, 15900)

This is a preparatory course for calculus. In *College Algebra and Trigonometry* (MA 15300, 15400, 15900) you will:

- Highlight the link of mathematics to the real world.
- Develop a wide base of mathematical knowledge, including
  - basic skills and concepts,
  - a functional view of mathematics, including graphical, algebraic, numerical, and contextual viewpoints,
  - properties and applications of some of the basic families of functions
  - geometric visualization,
  - problem solving, predicting, critical thinking, and generalizing.
- Incorporate the use of general academic skills such as
  - communicating mathematics concepts,
  - understanding and using technology, and
  - working collaboratively.

*The above aligns with the foundational intellectual skills for quantitative reasoning in the [Indiana General Education Core](#), the goals of the [IPFW Baccalaureate Framework](#), and is based on the guidelines of the Mathematical Association of America's subcommittee, [Curriculum Renewal Across the First Two Years](#) (CRAFTY).*

## 2. General Education Course Learning Outcomes

*College Algebra and Trigonometry* addresses all eight outcomes in Area 2: Quantitative Reasoning of the Indiana General Education Core (listed below). Through hands-on activities and assessments you will

- create and interpret mathematical models to solve problems presented as real world situations,
- formulate, validate, and analyze solutions to problems using mental, paper and pencil, algebraic, and technology-based techniques as appropriate
- utilize graphing calculators to find the solution to problems which cannot be solved by pencil and paper, as well as explore mathematical patterns and visualize mathematical ideas,
- recognize and cite assumptions made in real world problem solving, and
- communicate your reasoning.

<b>Indiana General Education Area 2 Quantitative Reasoning Competencies</b>	
<p><b><i>Interpretation</i></b> 3.1. Interpret information that has been presented in mathematical form (e.g. with functions, equations, graphs, diagrams, tables, words, geometric figures).</p> <p><b><i>Representation</i></b> 3.2. Represent information/data in mathematical form as appropriate (e.g. with functions, equations, graphs, diagrams, tables, words, geometric figures).</p> <p><b><i>Mathematical Procedures</i></b> 3.3. Demonstrate skill in carrying out mathematical (e.g. algebraic, geometric, logical, statistical) procedures flexibly, accurately, and efficiently to solve problems.</p>	<p><b><i>Critical Thinking</i></b> 3.4. Analyze mathematical arguments, determining whether stated conclusions can be inferred.</p> <p><b><i>Application / Analysis</i></b> 3.5. Communicate which assumptions have been made in the solution process. 3.6. Analyze mathematical results in order to determine the reasonableness of the solution. 3.7. Cite the limitations of the process where applicable.</p> <p><b><i>Communication</i></b> 3.8. Clearly explain the representation, solution, and interpretation of the math problem.</p>

See [ipfw.edu/offices/oaa/programs/GenEdPrograms.html](http://ipfw.edu/offices/oaa/programs/GenEdPrograms.html) for more information about the Indiana General Education Core.

### 3. The IPFW Baccalaureate Framework

The IPFW faculty have identified six foundations of baccalaureate education. These foundations provide the framework for all baccalaureate degree programs.

**Acquisition of Knowledge** Students will demonstrate breadth of knowledge across disciplines and depth of knowledge in their chosen discipline. In order to do so, students must demonstrate the requisite information-seeking skills and technological competencies.

**Application of Knowledge** Students will demonstrate the ability to integrate and apply that knowledge, and, in so doing, demonstrate the skills necessary for life-long learning.

**Personal & Professional Values** Students will demonstrate the highest levels of personal integrity and professional ethics.

**A Sense of Community** Students will demonstrate the knowledge and skills necessary to be productive and responsible citizens and leaders in local, regional, national, and international communities. In so doing, students will demonstrate a commitment to free and open inquiry and mutual respect across multiple cultures and perspectives.

**Critical Thinking and Problem Solving** Students will demonstrate facility and adaptability in their approach to problem solving. In so doing, students will demonstrate critical-thinking abilities and familiarity with quantitative and qualitative reasoning.

**Communication** Students will demonstrate the written, oral, and multimedia skills necessary to communicate effectively in diverse settings.

The foundations are interdependent, with each one contributing to the integrative and holistic education offered at IPFW.

### 4. Keys to Success

Your behavior is a key ingredient to your learning.

- You are expected to not only attend all class meetings, but participate in your group and contribute to the learning environment of the class as a whole. Travel plans, social functions on campus, appointments with an advisor, non-emergency appointments with your dentist, etc., are never an excuse to miss class.
- Be in your seat and ready to begin at the start of class and do not leave until the class is finished. Sit with your assigned group members.
- Come prepared to be engaged in learning mathematics. The classroom is not a place to read the newspaper, work on homework from other courses, send/receive text messages, or surf the Internet. Once you arrive to class, bring out your graphing calculator. Silence and put away any other electronic devices.
- Listen actively. When your instructor or your fellow students are talking to the class, be respectful, polite, and silent so that people around you can hear. Do not continue working in your group.
- To benefit from an interactive class, come to class prepared, having done the assigned reading and attempted the homework problems so you can contribute to your team. Ask questions if you have trouble as soon as you have difficulty. Use your instructor's office hours or the department's common office hour program.
- Show your work if the solution requires it, as opposed to just writing down an answer. Problem solving is a central focus of this course. Documenting the journey is at least as important as reporting the final destination.

### 5. Study Time Outside of Class

This course requires a solid effort. During the Fall or Spring Semester, the faculty at IPFW expect you to study a minimum of 6 hours a week outside of class working on mathematics for MA 15300 or MA 15400 and 10 ten hours per week for MA 15900.

### 6. Accessibility and Accommodations

If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact the Director of Services for Students with Disabilities (SSD). They are located at Walb Student Union, Room 113, telephone 481-6658, as soon as possible to work out the details. Once the Director has provided you with a letter attesting to your needs for modification, bring the letter to your instructor. For more information, please visit <http://www.ipfw.edu/ssd/>, the Web Site for SSD.

## 7. Prerequisite Skills

MA 15300, MA 15400, and MA 15900 are intended for students who have successfully completed at least two years of high school algebra. Students who are unsuccessful in passing this course typically are those who are unable to do the basic skills shown below. Take a look at the following kinds of problems. If these problems are challenging for you or do not look familiar, discuss your options with your instructor. Based on your major, you may be able to take a course with less prerequisites, such as STAT 125 or MA 140. For links to electronic practice of these skills see the course Websites (listed at #10 of this document on page 4), open this document on your computer, and click on the links in the third column. These links will also lead to related videos from Khan Academy.

Course Topic	<i>Functions Modeling Change, 5th Ed.</i>	Links to free <i>e-Practice</i> (Khan Academy)
Set up and solve linear equations and inequalities.	<b>Section 1.1:</b> 43 <b>Skills Refresher for Ch 1:</b> 1-11 odd, 23-31 odd <b>Section 2.2:</b> S3-S8	<a href="#">Solving Basic Linear Equations</a> <a href="#">One-Step Inequalities</a> <a href="#">Multi-Step Linear Inequalities</a>
Use function notation. Find the domain and range of a function if given its graph.	<b>Section 1.1:</b> S1-S10, 9, 11, 13, 15 <b>Section 2.1:</b> 3, 5, 21, 23b <b>Section 2.2:</b> 1, 3	<a href="#">Understanding Function Notation</a> <a href="#">Domain and Range from a Graph</a>
Know your Lines	<b>Section 1.3:</b> 3-15 odd, 41, 43 <b>Ch 1 Review:</b> 11, 13, 47	<a href="#">Solving for the y-intercept</a> <a href="#">Solving for the x-intercept</a> <a href="#">Identifying Slope of a Line from a Grid</a> <a href="#">Point-Slope Form</a> <a href="#">Slope-Intercept Form and Vertical &amp; Horizontal Lines</a> <a href="#">Find x-and y-intercepts of a Linear Function</a> <a href="#">Point-Slope Form to Slope-Intercept Form</a> <a href="#">Graphing Linear Equations, Vertical &amp; Horizontal Lines</a> <a href="#">Equations of Parallel and Perpendicular Lines</a>
Solve a systems of two linear equations (having no, one, or many solutions) by graphing, substitution, or elimination.	<b>Section 1.5:</b> S1-S8 <b>Ch 1 Review:</b> 47 <b>Skills Refresher for Ch 1:</b> 37, 39, 43, 45, 77, 49	<a href="#">Graphing Systems of Equations</a> <a href="#">Systems of Equations with Elimination</a> <a href="#">Systems of Equations with Substitution</a>
Simplify expressions with positive integer exponents	<b>Skills Refresher for Ch 4:</b> 1-17 odd, 69-81 odd	<a href="#">Simplifying Expressions with Positive Integer Exponents</a>
Simplify expressions with negative integer and fractional exponents	<b>Section 4.2:</b> S1-S10 <b>Skills Refresher for Ch 4:</b> 19-33 odd, 49 <b>Section 11.1:</b> S6	<a href="#">Simplifying Expressions With Negative Exponents</a> <a href="#">Understanding Fractional Exponents</a> <a href="#">Manipulating Fractional Exponents</a> <a href="#">Negative Fractional Exponents</a>
Simplify radicals, multiply/divide radicals, and solve radical equations.	<b>Ch 1 Review:</b> 67 <b>Section 2.1:</b> S8 <b>Skills Refresher for Ch 4:</b> 9, 35	<a href="#">Simplifying Radicals</a> <a href="#">Multiplying Radicals</a> <a href="#">Radical Equations</a>
Use the Distributive Property of multiplication over addition to expand a polynomial. Reverse the process by factoring. Solve quadratic equations by factoring or taking square roots of both sides of the equation or using the quadratic formula.	<b>Section 2.1:</b> S3 <b>Section 2.4:</b> S5-S8 <b>Skills Refresher for Ch 3 (Factoring):</b> 1-49 odd, 69, 75, 77, 79 <b>Section 11.2:</b> S1-S8	<a href="#">Multiplying Polynomials</a> <a href="#">Multiplying Binomials 1</a> <a href="#">Multiplying Binomials 2</a> <a href="#">Factoring Polynomials 1</a> <a href="#">Factoring Polynomials With Two Variables</a> <a href="#">Factoring Difference of Squares 2</a> <a href="#">Solving Quadratics by Factoring</a> <a href="#">Solving Quadratics by Factoring 2</a> <a href="#">Quadratic Formula</a>
Simplify rational expressions and find values for which the expression is zero or undefined. Solve rational equations.	<b>Section 2.1:</b> S9, 5, 23b <b>Section 2.2:</b> S1, S2 <b>Skills Refresher for Ch 3 (Factoring):</b> 71, 85, 87 <b>Skills Refresher for Ch 11:</b> 1-15 odd	<a href="#">Simplifying Rational Expressions 1</a> <a href="#">Simplifying Rational Expressions 2</a> <a href="#">Simplifying Rational Expressions 3</a> <a href="#">Simplifying Rational Expressions 4</a> <a href="#">Simplifying Rational Expressions 5</a> <a href="#">Solving Rational Equations</a>
Rounding Numbers	<b>See the last page of this handout. (View)</b>	<a href="#">Rounding Numbers</a>

Work the above suggested problems to make sure you have the tools you need to succeed.

## 8. Calculator

You will be required to use a graphing calculator for activities and assignments in and out of class. This is not optional. The TI-83, TI-83 Plus, TI-84 Plus, or TI-84 Plus C is strongly recommended. You may use another equivalent calculator\* but you will be responsible for understanding how to use it. Your instructor will be most familiar with the TI-83/84 or TI-83/84 Plus and may not be able to offer you help with other calculators.

\*Your calculator should have features which enable you to find intersection points, zeros (or roots), and maximum/minimum points of graphs. If you have questions whether your model of calculator is allowed, ask your instructor.

**Graphing Calculator Loan Program:** You can rent a TI-83 or TI-84 Plus for the semester for a nominal fee from the Indiana University Purdue University Fort Wayne Students' Government Association (IPGSA), located in the Walb Student Union Room 225 (260-481-6586). Supplies are limited and are usually depleted the first week of classes. However, some students may have dropped a class which requires a calculator so one could just be sitting here on a shelf waiting just for you.

## 9. A Team Approach to Problem Solving

A primary goal in this course is the ability to work as a functioning member of a team to solve challenging problems and analyze mathematical information. Working in a group not only helps you develop the interpersonal skills required for the workplace in the context of problem solving, but will help you meet many other course goals as well:

- communicating your reasoning orally,
- actively listening and understanding the reasoning of other team members, and
- creating logical arguments. If you can't explain it, it is likely you don't fully understand it.

### Group Roles

Effective groups are organized and have clearly defined roles for its members. Group roles could include:

**Manager** - encourages all members of the group to participate in the discussion and share their ideas, keeps the group on task, and takes one of the other roles if one of the group members is absent.

**Reader** – reads the problem aloud to the group. Afterwards, takes on other roles, such as Quality Controller.

**Scribe** – writes up the group's solution to the problem for presentation to the class, showing the necessary steps to the solution and, if appropriate, writing verbal interpretations of the mathematical concepts in complete sentences.

**Quality Controller** – double-checks for correctness, capitalizing on the Rule of Four where appropriate. This role is sometimes called the “Clarifier” or the “Devil’s Advocate.”

## 10. Internet Resources and your IPFW Computer Lab Account

Student-access computer labs are located around campus. For a complete list, go to the Information Technology Services Website at <http://ipfw.edu/its/>, click on **Resources & Services** and then **Facilities**. You will should see a link for **Student open access computer labs**. To use the computers in these labs you must have an activated IPFW computer Lab Account, which you received when you enrolled in IPFW. If you need assistance, contact the IPFW Help Desk, 260-481-6030, or Kettler 206, or email [helpdesk@ipfw.edu](mailto:helpdesk@ipfw.edu).

MA 15300 Website: <http://www.ipfw.edu/departments/coas/depts/math/courses/math-153.html>

MA 15400 Website: <http://www.ipfw.edu/departments/coas/depts/math/courses/math-154.html>

Mathematical Assistance Learning Lab (MALL): <http://www.ipfw.edu/departments/coas/depts/math/mall/>

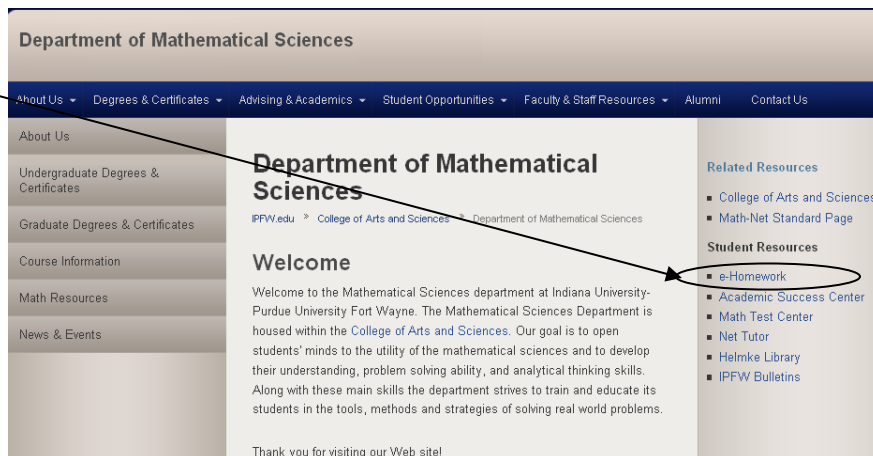
## 11. eHW at [ipfw.edu/math/](http://ipfw.edu/math/)

You will be required to use a Web-based electronic homework (eHW) system, which immediately grades your answers and provides worked-out solutions. The screenshots below were from a session using the Firefox Web browser.

### Get to the eHW Site

Here is a visual path to get to the eHW site.

Go to [ipfw.edu/math/](http://ipfw.edu/math/) and click on **e-Homework**.



### Purchase an eHW Access Code (User ID and Password)

You will need to purchase an eHW access code if you do not already have one. You must purchase this online. It is not available in the book store.

Click on the link off of the **e-Homework** Page which will take you to the Maplesoft Web Store.

If this is your first time you are here, you will need to take a moment to create a membership account with Maplesoft with a user id and a password (which is not your eHW access code).

There is a short 2 minute video on how to purchase a code on the **e-Homework** Page that walks you through it.

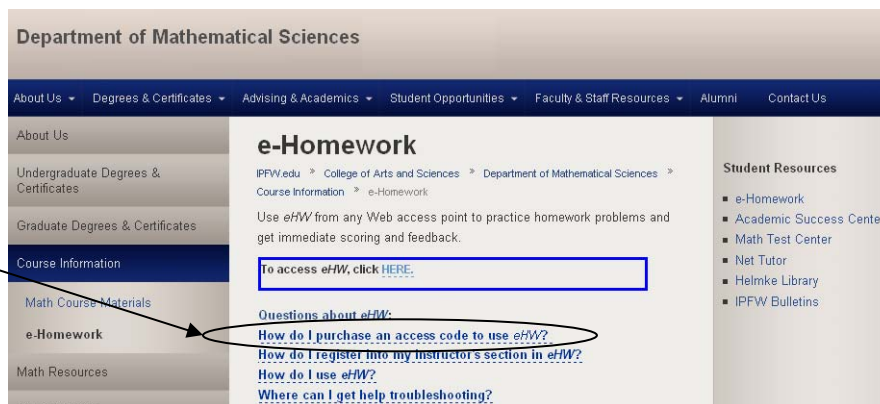
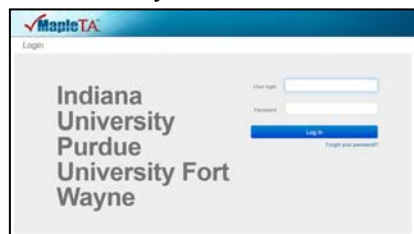
**TIP:** It is vitally important that you **enter your information correctly**.

For example, if George Washington were a student at IPFW, his e-mail might likely be **washg01@students.ipfw.edu**

Contact Maplesoft customer service at **1-800-267-6583** ext. **240** or by e-mail at [custservice@maplesoft.com](mailto:custservice@maplesoft.com) if you need help purchasing an eHW access code.

### Log in to eHW

Click on the link in the box on the **e-Homework** Page to go to the **Login** page shown below. Enter your eHW access code.





**Validate Your Profile**

Once you have logged in you will see a screen similar to the one to the right with a bunch of gibberish.

It can be tempting to just close your eyes and click SUBMIT. Resist the urge.

You need to change the four starred boxes to your personal information or your instructor will not know to whom this account belongs.

**Important!**

Make sure your email is correct. If you forget your password, the system will e-mail it to the address you enter here. If this address is incorrect, you will not receive it. ☹

**Example:**

First Name

Last Name

Display Name

← This field completes automatically once you type the above.

In the next two boxes enter your valid e-mail address. Be sure to include “.students.”

Student ID

Email

After you have typed the above, click **Submit**. You should see your full name at the top of the screen (not George’s).

**Self-Register for Your Class**

Click on **Enroll in a Class** to self-register in a section. Follow the prompts.

**Edit Your Profile**

Click on your **full name** at the top of the screen (next to Logout) to change your password or edit your personal information.

Click on **My Homepage** at the top of the screen to return.

Avoid using the Back button on your browser. It confuses eHW.

Be sure to keep your access information private from your fellow classmates. Logging in under someone else's account is considered fraudulent behavior and will be reported to the Dean of Students.

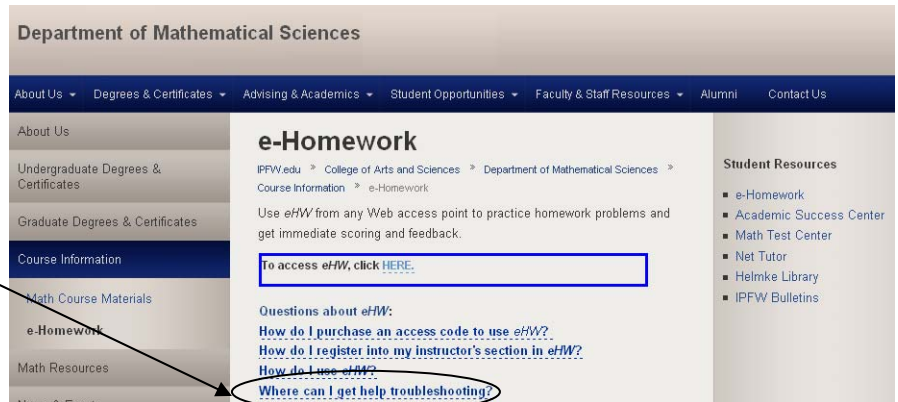
### Need Help Troubleshooting?

On the **e-Homework**

Page, you can get help if you have technical difficulties.

Note: When you have trouble with eHW, please e-mail **ehwtechsupport@ipfw.edu** describing the problem in as much detail as possible.

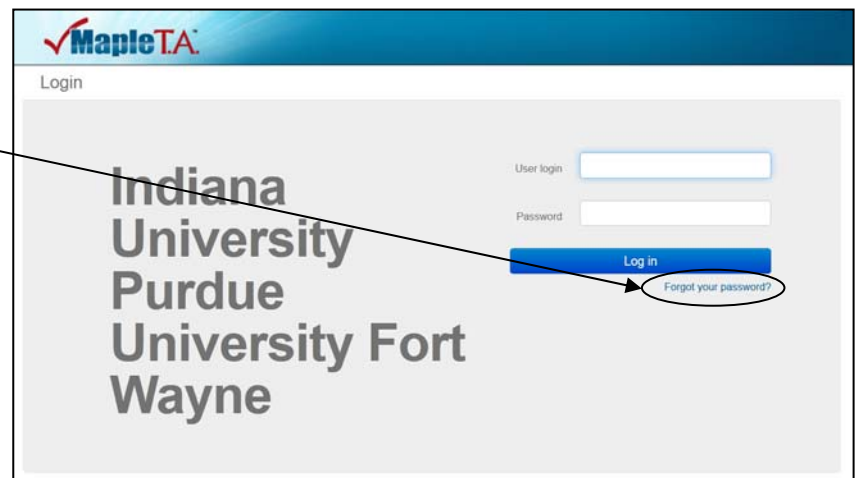
The eHW administrator may be able to resolve the issue faster than if you were to contact the Help Desk.



### Forgot Password?

Reminder: If you forgot your password, click on the **Forgot your password** link on the **Login Page**.

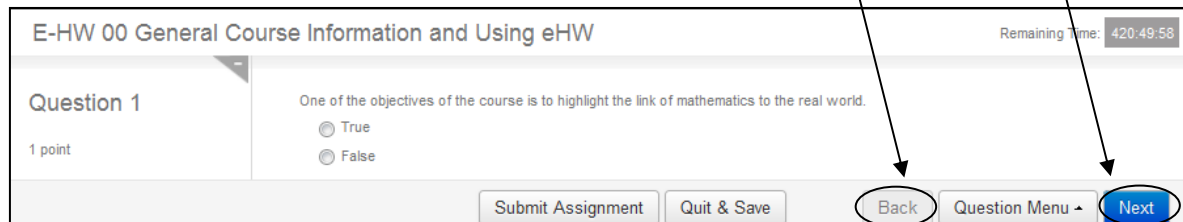
The turnaround time will be instantaneous, unless you entered a bogus email address in your profile. If that is the case, you must contact **ehwtechsupport@ipfw.edu**



### A sample eHW session:

Once you have logged in and enrolled in your instructor's course (see previous page), click on **My Homepage** at the top of the screen (if you are not already there), and click on the link to the Class Homepage.

Click on the link to your assignment. To move between questions use eHW's **Back** button and **Next** button. Use the **Question Menu** to jump to specific questions you may have skipped.



To grade your completed assignment click on the **Submit Assignment** button.

To log out of your current assignment to return to complete later, click the **Quit & Save** button.

**Important:** The only way it will be submitted to your instructor is if you click on **Submit Assignment**. Be careful that you don't just click on **Quit & Save** and miss an assignment deadline.

If you can see your score when you click on the **Gradebook** link, your instructor can see it as well.

**Submit Your Assignment and View Worked Out Solutions:**

Once you click on the **Submit Assignment** button, if you have not answered some of questions in your assignment, you will be warned and have the opportunity to complete them before grading.

**E-HW 00 General Course Information and Using eHW**

**Submission Report**

**Warning:** There appears to be errors in one or more of your answers.

Press the Back button or click on one of the questions in the list to go back and correct your work.

If you press Submit Assignment again, you will get your grade immediately, but the questions listed will all be graded as wrong.

Question	Problem
<b>Question 1</b> 1 point	The question has not been answered
<b>Question 9</b> 1 point	You have not filled in all the blanks.
<b>Question 10</b> 1 point	(a): The formula has no symbols in it.

Submit Assignment   Quit & Save   Back   Question Menu ▾   Next

If any of your answers include math syntax errors or other input not understood by *eHW*, you will also be warned and have the opportunity to fix those specific questions. Once you click on **Submit Assignment**, a dialog box will pop up to show your percentage score and the number of questions you answered correctly.

**E-HW 00 General Course Information and Using eHW**

**Feedback: Grade Report**

Thank you

Your assignment is complete. Your score was 10 out of 10 (100 %).

Click on View Details to see your graded assignment and the worked out solutions.

On the Class Homepage, click Gradebook and select View Past Results to see all your eHW scores. These scores are what your instructor will have recorded.

View Grade   **View Details**   Quit & Save

To view your graded assignment and see any detailed feedback that is available, click on the **View Details** button. You will then see your actual assignment with solutions and any detailed feedback, with an option to print.

**Entering Math Expressions**

In "Text Entry Mode" you enter formulas using standard mathematical notation similar to that used in a graphing calculator, following the rules for standard order of operations. Some helpful tips follow for entering responses. The most common mistake is parentheses (#2 on the list below) and variable names (#3 below).

1. **Exponents:** Use the caret, ^, for exponentiation, and the letter e for 2.718...
2. **Parentheses:** As on a graphing calculator, you must use parentheses. When in doubt, you can use the **Preview** option to see it look the way it would in a math text.

**Examples:**

For  $2^{x/13}$ , you must type

not  ... which would be interpreted as  $\frac{2^x}{13}$

For  $y = \frac{x}{4(x-2)}$ , you must type

not  ... which would be interpreted as  $\frac{x}{4}(x-2)$



3. **Variable Names:** You can use any letter for a variable name, but you should always use the same letter that is used in the question. If the question asks you for  $(t+1)^2$  then the answer  $(x+1)^2$  will be graded wrong. Also, the system is case sensitive. So, if instead of typing  $(t+1)^2$  you enter  $(T+1)^2$ , your answer will be graded wrong.
4. **Multiplication:** You can type an asterisk (i.e. \*) for multiplication, or just type a letter and a number together (i.e. 2x).
5. **Square Roots:** The square root function is  $\text{sqrt}(x)$  or you can just type  $x^{(1/2)}$  or  $x^{0.5}$  instead. Note again that, like on a graphing calculator,  $x^{1/2}$  means  $\frac{x}{2}$ .
6. **Absolute Value:** The absolute value function is  $\text{abs}(x)$ , so something like  $2|x+1|-3$  would be typed as  $2\text{abs}(x+1)-3$ .
7. **Argument of Functions:** You should always place the argument of a function in parentheses. For example, for  $\sqrt{3x}$  you must type  $\text{sqrt}(3x)$ , not  $\text{sqrt } 3x$  which would be interpreted as  $\sqrt{3} \cdot x$

**For MA 15900 or MA 15400 students especially:**

8.  **$\pi$ :** Simply type  $\text{Pi}$  or  $\text{pi}$ . (However, not  $\text{PI}$ .)
9. **Trigonometric Functions:** The names for common mathematical functions (sin, cos, etc.) are just what you would expect. The inverse trig functions are  $\text{arcsin}(x)$ ,  $\text{arccos}(x)$ , and  $\text{arctan}(x)$ . Also, trigonometric functions are all set to work in radians.

### Using the Preview Option in Responses


Use the **Preview** option to view your response as a typeset mathematics expression. **Preview** demonstrates how the system interprets your entry (inspecting it for misplaced parentheses and other unintended keystrokes).



For example, in the following question, suppose a student types  $5/9x+7$  in the box. (Note that this is incorrect.)

Suppose a student wishes to enter the expression below into a graphing calculator or a computer:


$$\frac{5}{9x+7}$$

Show that you can enter it correctly by typing the expression in the box below.

TIP: Type your answer in the box and click on the **Preview**  icon to check you typed your answer correctly.

$\frac{5}{9x+7} =$    

The entry boxes with a small icon beside them are designed to accept numbers or formulas.  
[Help](#) | [Switch to Equation Editor](#)

After typing  $5/9x+7$  in the box and clicking on **Preview**  a pop-up appears showing how it would appear in "pretty print."

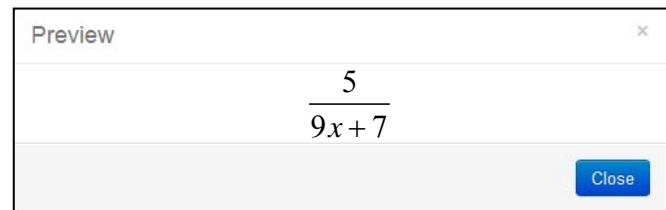


Preview ×

$$\frac{5}{9}x+7$$


[Close](#)


However, when you type  $5 / (9x+7)$  and click on the Preview icon, a pop-up will confirm that you have correctly typed the desired expression.



### Nested Parentheses

To computers and graphing calculators, in text entry mode brackets such as [ or ] or braces such as { or } are **not** equivalent to parentheses.

For example, to enter  $3^{2/(x+1)}$  you would type  $3^{(2/(x+1))}$  

as opposed to  $3^{(2/[x+1])}$  


### Entering Math Using Palettes

A symbol palette is also available if you click on **Change Entry Style** () or **Switch to Equation Editor**.



Suppose a student wishes to enter the expression below into a graphing calculator or a computer:

$$\frac{5}{9x+7}$$


Show that you can enter it correctly by typing the expression in the box below.

TIP: Type your answer in the box and click on the **Preview** () icon to check you typed your answer correctly.

$\frac{5}{9x+7}$


=   

The entry boxes with a small icon beside them are designed to accept numbers or formulas.  
[Help](#) | [Switch to Equation Editor](#) | [Preview](#)

After you click  or click **Switch to Equation Editor**, you stay in this mode indefinitely unless you toggle back and **Switch to Text Entry**.

You will see the Equation Editor appear with several palettes.

Click on  to clear your palette!

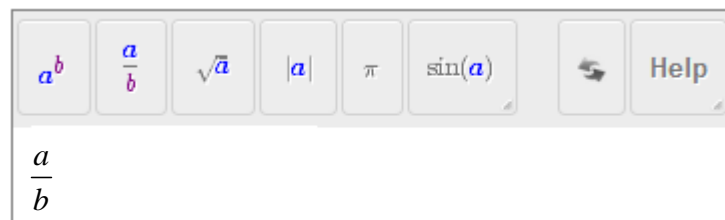
Click in the white space first. 

Then click on a palette choice such as



The palette appears.

### Equation Editor



Modify as needed.

$$\frac{5}{b}$$

$$\frac{5}{9x+7}$$

Note: It is important to use a multiplication symbol (SHIFT 8) between factors containing variables.

$$\frac{7(x-6) \cdot (x-5)^3}{(x-1)^4}$$

$$\frac{7(x-6)(x-5)^3}{(x-1)^4}$$

The system allows you to toggle Math Entry Modes as often as you want, depending on the requirements of the question and your personal preferences. Each time you change the style of math entry, the system remembers your responses on previous questions, and automatically translates them for you.

You can use the following shortcut keys when entering answers in the Equation Editor. For example, **Ctrl** followed by **Space** completes a symbol.

Shortcut Characters	Result
Ctrl+Space (Command+Shift+Space for Macintosh)	symbol completion
^ (caret)	superscript
_ (underscore key)	subscript
/	fraction
Ctrl+' (Command+' for Macintosh)	underscript
Ctrl+Shift+" (Command+Shift+" for Macintosh)	overscript
sqrt (and then symbol completion)	Square Roots
nthroot (and then symbol completion)	Roots
Ctrl+Shift+^ (Command+Shift+^ for Macintosh)	pre-superscript
Ctrl+Shift+_ (Command+Shift+_ for Macintosh)	pre-subscript
Ctrl+ / (Command+ / for Macintosh)	return cursor to baseline
Right-click (Control-click for Macintosh)	display palettes

**Rules for Rounding**

Standard rules for rounding numbers apply.

For example, suppose we are rounding the following calculations to two decimal places.

$1.12^2$	
$1.12^8$	$1.25\text{\underline{44}}$
$1.12^{41}$	$2.47\text{\underline{5963176}}$
	$104.21\text{\underline{70869}}$

Look to the right of the rounding digit, which we have underlined.

If it is 4 or lower, we truncate. So to two decimal places,  $1.12^2 \approx 1.25$

If it is 5 or higher, we round up. So to two decimal places,  $1.12^8 \approx 2.48$

and to two decimal places,  $1.12^{41} \approx 104.22$

What is  $1.12^{23}$  to two decimal places? Since the digit to the right of the rounding digit is 2, we have  $1.12^{23} \approx 13.55$ .

$1.12^{23}$
$13.55\text{\underline{234726}}$

## 12. Help!

So you're working your hardest, doing the assignments, studying every night, but it's just not enough?

<p><b>Suggestion 1:</b> Read the book. Really, really read it. Sit down and read it. Carefully. Again and again.</p> <p><b>Suggestion 2:</b> Do lots of individual homework. Understanding material in later chapters typically requires that you understand concepts in previous ones.</p> <p><b>Suggestion 3:</b> Recopy your notes.</p> <p><b>Suggestion 4:</b> Problem solving requires persistence. If you don't understand something the first time, you're in good company. Even Einstein had trouble and said, "Do not worry about your difficulties in Mathematics. I can assure you mine are still greater." Don't just give up. Take a break and come back and try again!</p> <p><b>Suggestion 5:</b> Remember, <i>there's no substitute for daily preparation</i>. Get help as soon as any problems arise. Which takes you to the second column of resources....</p>	<p><b>Resource 1.</b> Talk to your instructor. Use the office hours.</p> <p><b>Resource 2.</b> Use the common office hours (see link on <a href="http://ipfw.edu/math">ipfw.edu/math</a>) of other instructors who teach the same course.</p> <p><b>Resource 3.</b> If you can, meet with your group members outside of class and do your homework together. If this isn't possible, talk with them as soon as you get to class about any assigned problems that gave you trouble. Find a Supplemental Instruction session (see <a href="http://ipfw.edu/casa/">ipfw.edu/casa/</a>).</p> <p><b>Resource 4.</b> Use the Center for Academic Support and Advancement (CASA) for tutoring or use drop-in tutoring in Kettler G21.</p> <p><b>Resource 5:</b> Use the Web, starting first with the Internet resources listed in this handout.</p>
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