



UNIVERSITY of HAWAII
WINDWARD COMMUNITY COLLEGE

Ke Kulanui Kaiāulu o ke Ko'olau

MATH 103 – COLLEGE ALGEBRA

Fall 2024, 8/26 – 12/20, TTh 5:30 pm – 7:20 pm

4 Credits | CRN 64284

Windward Community College Mission Statement

'O keia ka wā kūpono e ho'onui ai ka 'ike me ka ho'omaopopo i kō Hawai'i mau ho'oilina waiwai. Aia nō ho'i ma ke Kulanui Kaiāulu o ke Ko'olau nā papahana hou o nā 'ike 'akeakamai a me nā hana no'eau. Me ke kuleana ko'iko'i e ho'ohiki ke Kulanui e kāko'o a e ho'okumu i ala e hiki kē kōkua i ka ho'onui 'ike a nā kānaka maoli. Na mākou nō e ho'olako, kāko'o a paipai i nā Ko'olau a kō O'ahu a'e me nā hana no'eau ākea, ka ho'ona'auao 'oihana a me ka ho'onui 'ike ma ke kaiāulu – hō'a'ano a e ho'oulu i nā haumāna i ka po'okela.

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O'ahu's Ko'olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment – inspiring students to excellence

Instructor Information

How to Contact Your Instructor

David William K.W.L. DONLIN, Lecturer, Mathematics

Office: <https://meet.google.com/tow-okvp-fvx>

Office Hours: TTh, 5:00 pm – 5:30 pm or by appointment

Email: donlind@hawaii.edu

Google Meet (Virtual Classroom): <https://meet.google.com/tow-okvp-fvx>

Alternate Contact Information

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

- Location: Alaka'i 121
- Phone: (808) 235-7422

Course Information

Catalog Description

Linear equations, inequalities, systems of equations, polynomials, functions, fractional expressions and equations, exponents, powers, roots, quadratic equations and functions; rational, exponential and logarithmic functions.

Prerequisites

“C” or better in MATH 25, 26, 29, 82 or equivalent

Corequisites

enrollment in MATH 88, satisfactory math placement test score, or consent of instructor.

Course Outcomes

Activities Required at Scheduled Times Other than Class Times

Students may schedule exams to be held outside of normal class meeting times, however, regular class meeting times for exams will also be made available. This will be explained in greater detail during the synchronous class.

Student Learning Outcomes

As a result of taking this course, students can expect to attain the following outcomes:

1. Graph or interpret algebraic relations that are relevant to the topics in this course.
2. Employ algebraic techniques to find the solutions to equations or inequalities, or systems of equations or inequalities appropriate to the level of this course.
3. Use algebraic techniques to analyze and solve applied problems.
4. Utilize precise mathematical language and symbols to effectively communicate mathematics in written and/or oral form.

Required Materials

Textbook: *Lial, Hornsby, McGinnis. (2020) Algebra For College Students, 9th Edition*

Access to Pearson, MyLab Math will provide you with a digital version of the textbook. The physical textbook is not necessary for this class.

Course Format

This is a fully online course with scheduled meetings as noted at the beginning of this document. The schedule provided below is the pace at which the course will continue throughout the semester and adherence to the schedule will give you the best opportunity to be successful in this course.

The mode of instruction is primarily discussion-problem solving where the initial portion of each class period may be utilized to discuss and clarify any questions from the preceding class meeting and/or assignment, and the remaining portion is used to discuss new material. Lectures, directed student explorations, and appropriate technologies will also be used as appropriate. After the completion of each unit, a review and exam will be conducted.

The student will demonstrate competency in the objectives by participating in and completing all class activities, by completing and turning in all assignments as requested, by taking unit tests, and by taking a final exam covering concepts and skill from the entire course. Class activities, unit tests, and the final exam are to be taken in the classroom and without any references unless otherwise stipulated by the instructor.

Course Technology

Laulima Learning Management System

- [Laulima \(Sakai\) Accessibility](#)
- Laulima will be unavailable daily from 3:00 am-4:00 am HST for server backup and maintenance.
- Laulima automatically logs you out *if it does not detect activity for two hours*. A warning message will appear, notifying you of the lack of activity. Activity is defined as clicking a button in Laulima, such as "Save Draft" or "Next" (in a test), clicking on a course tab, or taking an action that sends information to the server.

Regular Substantive Interaction

Online courses at Windward Community College follow these guidelines for ensuring quality instruction: [RSI Definition-WCC](#).

Other Technology

- [YouTube](#) is used for delivering some of the course content ([accessibility statement](#), [privacy policy](#))
- [Google Meet](#) is used to host online meetings ([accessibility](#), [privacy policy](#))
- [Google Classroom](#) is where course materials will be kept. You may access this through your UH Gmail account with Class Code: **5uohiuz**. If you were already registered for this course then you may already have an invitation to join the class in your UH email.

Participation Verification

Campuses are required by federal regulations to verify the participation of students in their classes. In accordance with [Executive Policy 7.209](#), all students in the University of Hawai'i system are required to establish "participation" to ensure that they are not dropped from their class(es). Students who fail to participate by the late registration period for a class will be administratively dropped from that class. Students may also be dropped from dependent prerequisite and/or corequisite classes if both courses do not establish participation.

Grading Policy

Grading

To receive full credit for problems done on exams and in-class activities, you must show sufficient work in a clear and organized manner to display your understanding of the content. Messy and/or disorganized work will not receive full credit.

Points will be assigned to each graded assignment, class activity, and tests as follows:

3 Exams (100 Points Each)	300 points	60%
Final Exam	120 points	15.0%
Student Exemplars	99 points	12.5%
MyLab Math Homework	100 points	12.5%
Total		100%

Course Grade

A letter grade for the course will be assigned according to the level of achievement as provided in the table below:

<u>Grade</u>	<u>Definition</u>
A	90% - 100% of the cumulative points possible
B	80% - 89% of the cumulative points possible
C	70% - 79% of the cumulative points possible
D	60% - 69% of the cumulative points possible
F	less than 60% of the cumulative points possible.
N	definition listed below
Cr	70% - 100% of the cumulative points possible
NC	less than 70% of the cumulative points possible

Note: CR/NC grades require written instructor consent. Students must apply for CR/NC grading option at the Admissions Office by the posted deadline. If a student does not apply for CR/NC grading option at the Admissions Office by the required deadline and if s/he does not withdraw, a letter grade (A, B, C, D, F, N) will be assigned for the course.

Note: The W grade is given only when the student officially withdraws from the course by the posted deadline. If a student withdraws from this course they must also withdraw from the companion Math 88 course.

Note: The I grade is a temporary grade given at the instructor's option when a student has failed to complete a small part of a course because of circumstances beyond his or her control. A student may qualify for the "I" grade if: (a) they are unable to take the final exam and (b) taking the final exam

could possibly raise their course grade. The “I” grade is given by student request and must be approved by the instructor.

Note: The N grade is given at the discretion of the instructor and only when the criteria for the N grade is met by the student. Consult the WCC Catalog for the criteria of the N grade.

Note: Students must apply for the Cr/NC grading option at the Admissions Office. Consult the WCC Catalog for deadlines.

Note: W grade is given only when the student officially withdraws from the course at the Admissions Office. Consult the WCC Catalog for deadlines. This section refers to how the student will be assessed and the grades available to the student. Grading criteria should be included in this section. Note: If you are using Gradebook in an LMS they should match your grading scheme in your syllabus.

Assessment Tasks and Grading

Exams

There are no retests or make-ups for exams. The final exam is cumulative. If you are unable to attend class on an exam day, it may be possible for you to take the exam earlier than the specified day/time. You must contact the instructor ahead of time to arrange this.

* If the percent earned on the final exam is higher than your lowest exam score, then your lowest exam score will be replaced with the percent earned on the final exam.

Homework

Homework will be completed online via the MyLab Math program. Keep in mind that homework is not simply a task to be completed but an opportunity to practice at your own pace. You may need to do more than the assigned homework problems to become comfortable with the concepts and skills; you may have to repeat problems to make sure you understand. The Homework portion of your grade will be based on the total number of assignment problems completed.

Student Exemplars

For every section we cover you will select any one of the assignment problems from each of the MyLab Math homework sets for that section and post your solution and response to the prompts outline on the class Lulima discussion board for at most 3 points per problem. Further details on this assignment will be posted on Lulima as well as explained during our class meeting.

In-Class Activities

In-class worksheets will be turned in for credit. These activities are considered class participation points. You may not make up in-class activities.

Academic Integrity

Work submitted by a student must be the student’s own work. The work of others should be explicitly marked, such as through the use of quotes or summarizing with reference to the original author.

In this class, students who commit academic dishonesty, cheating, or plagiarism will have the following consequence(s):

Students will receive a failing grade for plagiarized assignments.

All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

[Windward CC Student Conduct Information](#)

[UH System Student Conduct Policy EO 7.208](#)

Include an AI Statement (is it ok in your class? if so, when/how?) Here are some [UH Guidelines](#) and [AI Recommendations](#). Instructors should refrain from sharing or inputting student work into online AI tools, including AI detection tools, without obtaining student consent. Uploading student work has potential FERPA implications as well as potential copyright concerns. Additionally, the uploaded content could be used as data for training of the AI, without the student's consent.

Student Responsibilities

Absences

It is the **student's responsibility** to obtain and complete all assignments that are given in any class meeting for which the student is unable to attend. Unless permission is granted by the instructor beforehand, assignments and tests must be completed and submitted to the instructor at the specified date and time.

If you are absent, you are responsible for any important announcements or assignments given during the class you missed. Advanced warning of absences is appreciated, but not required; however, it does help me to help you if you keep me posted. You can also arrange a time to meet with me to review any missed lecture material.

Calculators

Non-graphing calculators are allowed on exams and may be used on homework as needed.

Online Learning

For those of you new to a synchronous course, there are some things to keep in mind when it comes to a virtual classroom meeting. Be acutely aware of your microphone and camera (i.e. be aware if it's off or on at all times). For our online class I will be recording the class to make the video available for students who want to use it for reference later, but the recording will be focused on the presenter's screen and the speaker, so mostly just me unless you use your microphone during the class. I'm also going to ask, if you're comfortable with it, that you keep your camera on during lessons because it really does help me to be able to see live students during the class. Being able to see actual students helps to recreate some of the advantages of a face-to-face class where I can quickly gauge understanding and notice if you raise your hand to ask questions. However, I will understand if this is more than you're comfortable with and keeping your camera off will not affect you negatively, questions can always be relayed through the chat window as well.

For those of you nervous about distance learning or feeling anxious about taking math online, treating the online class as though it were meeting face-to-face will help get you in the proper

mindset. Try to find a place away from distractions if possible and prep for class as if you were physically leaving your house to get to class; shower, brush your teeth, change into something appropriate, whatever routine it takes to get you in the right frame of mind.

Advice from Former Students

At the end of every semester I ask my students the following question: What advice would you give to a student taking this course next semester? Below are their collected response from the past few years.

- Always attend class, take notes, and do your Pearson/student exemplars. Attend math lab workshop tutoring.
- Follow the assignments and keep up with work. It's easy to fall behind and have everything pile up.
- Just do the work.
- Don't slow down.
- Just stay on top of your weekly assignments and take advantage of all the extra credit points you can get because it can really help in the end.
- Keep on track and up to date with your coursework.
- The advice I would give to any student taking this class next semester is to really focus and do your work. Try not to wait till the last minute or end of finals week to do it because you have other classes to do. This class will definitely stress you out but never give up!!
- Be prepared to do a lot of work.
- Be prepared to manage your time.
- Just do your part and keep doing your homework.
- Focus in class and pay attention.
- Do the Pearson homework and exam reviews. You can learn from attending the online class, but without the practice to solidify what you've learned, you will not do well in this class.
- You should spend extra time trying to do practice problems to learn how to do this math.
- GO TO THE ONLINE CLASSES!!! Being in person online is easy and there is a lot of good information and discussion to be had. Don't miss out!
- Complete all the homework. Take your time, get help!
- Don't slack off it's hard to catch up. Keep up with the assignments, there are a lot of them so if you miss any it takes a long time to catch up.
- Try your best not to miss class, or else you will be lost!
- Be ready to pay attention and learn.

- Ask questions.
- Come early to class and ask questions one on one.
- Don't be afraid to ask questions.
- Don't be afraid to ask stupid questions, they aren't stupid questions if they help you learn.
- Ask the stupid questions! The other students won't laugh. Do the homework, you're going to need it on your tests.
- Do the homework to get the best preparation for the tests and understand the concepts.
- Pace yourself with the homework.
- Stay caught up with the homework.
- Do the fricken homework, or else you won't be ready for the test!
- Stay on track with the syllabus and complete what is due every week.
- Do not procrastinate and stay caught up on the homework, because once you're behind it's really hard to catch back up.
- Stay on a rigorous schedule and keep up with assignments. I would also advise that you seek out a tutor before the semester begins and to go over notes with a tutor weekly. Ask for assistance, keep the instructor in the loop, and keep an open line of communication.
- Don't take this course lightly! Make this your priority! GET YOUR TUTOR ASAP! Go to TRIO go to the math lab! Mr. Donlin is super accommodating and easy to work with BUT YOU STILL HAVE TO KNOW THE CONTENT! If you think you gonna just half @\$\$ it DON'T BOTHER WASTING YOUR TIME OR MONEY/SCHOLARSHIP!!! Be ready to put in work!!!

How to Seek Academic or Technical Support

Academic Support

- [Windward Community College Library](#)
- [Library eResources](#)
- [Ka Piko Writing Lab](#)
- [Ka Piko Speech Lab](#)
- [Ka Piko Math Lab](#)
- [Evening and Online Learning at Windward Community College](#)
- [STAR Balance](#)

Technical Support

- [UH ITS Help Desk](#) – email help@hawaii.edu or call 956-8883 (or 1-800-558-2669) for Lualima and most technology support. Available 24 hours a day, 7 days a week, including holidays.
- Student Tech Support - email winhelp@hawaii.edu, call 808-235-7437, or stop by in person at Hale La'akea 228. Available Monday–Friday from 8:00 am–4:00 pm.
- Lualima – Click on the [Request Assistance](#) link at the bottom of any Lualima Page to fill out and submit a question and get your answer via email.
- [Information Security for Students](#)

College Policies & Support Services

Disabilities Accommodations Statement

The Windward Community College's Disability Student Services Office (WCC-DSSO) is committed to providing equal access to qualified students with disabilities.

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to participate fully in this class, you are encouraged to contact the Disability Specialist Counselor, Roy Inouye, to discuss reasonable accommodations that will help you succeed in this class. The Disabilities Counselor can be reached at 808-235-7448, wccdsso@hawaii.edu, or stop by the office (Hale Kako'o 105) for more information.

Basic Needs

Basic needs include food and housing, childcare, mental health, financial resources, and transportation. Student basic needs security is critical for ensuring strong academic performance, persistence and graduation, and overall student well-being. If you or someone you know is experiencing basic needs insecurity, please see the [UH System Basic Needs website](#).

Mental Health Counseling

Mental Health and Wellness at Windward Community College counseling services and activities on campus to support students' life goals as well as their academic goals. Information about services can be found at the [WCC Mental Health & Wellness website](#).

UH Alerts

The UH Alert emergency notification system alerts the university community in the event of a natural, health or civil emergency. The information you provide will only be used in the event of an emergency that impacts the health and safety of the UH community or the closure of whole campuses. It will not be shared with others or used for routine UH communications or announcements. To sign up, visit [UH Alerts website](#) for more information.

Financial Aid

If you are receiving financial aid and are contemplating not completing the course, BEFORE you withdraw, it is highly recommended that you contact the Financial Aid Office at 808-934-2712 or email them at wccfao@hawaii.edu to discuss the impact this decision may have on your financial aid eligibility.

Student Conduct Code

Windward Community College follows the University of Hawai'i Code of Student Conduct which defines expected conduct for students and specifies those acts subject to University sanctions. Students should familiarize themselves with the Code of Student Conduct since, upon enrollment at Windward Community College, the student has placed herself/himself under the policies and regulations of the University and its duly constituted bodies. The disciplinary authority is exercised through the Office of the Vice Chancellor for Student Affairs. Copies of the Student Conduct Code are available at the Office of the Vice Chancellor for Student Affairs or [online](#).

Title IX - Sex Discrimination And Gender-Based Violence Resources

Windward Community College is committed to providing a learning, working, and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking.

If you or someone you know is experiencing any of these, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

Leslie Cabingabang, UH System Confidential Advocate
 Phone/Text: (808) 348-0432 or (808) 341-4952
 Email: advocate@hawaii.edu
 Office: Hale Kāko'o 107 (Wednesdays)

Mykie E. Menor Ozoa-Aglugub, J.D., Title IX Coordinator
 Phone: (808) 235-7468
 Email: mozoa@hawaii.edu
 Office: Hale Kāko'o 109

Desrae Kahale, Mental Health Counselor & Confidential Resource
 Phone: (808) 235-7393
 Email: dkahale3@hawaii.edu
 Office: Hale Kāko'o 101

Karen Cho, Deputy Title IX Coordinator
 Phone: (808) 235-7404
 Email: kcho@hawaii.edu
 Office: Hale 'Alaka'i 120

As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

For more information regarding sex discrimination and gender-based violence, the University's Title IX resources, and the University's Policy, Interim EP 1.204, go to <https://www.hawaii.edu/titleix/>

Course Content

DONLIN – Fall 2023; TTh 5:30 – 7:20 PM (CRN: 64284)

Academic Calendar:

September 3 – Last Day to Add/Late Register, Last Day for 100% Refund

September 17 – Last Day for 50% Refund, Last Day to Withdraw *without* a “W” Grade

November 4 – Last Day to Establish C/NC and Audit Options, Last Day to Withdraw *with* a “W”

November 11 – First Day of Registration for Continuing Students

December 12 – Last Day of Instruction

December 20 – Last Day of the Semester

Holidays for the Semester

September 2 (Monday) – Labor Day (No Classes)

November 5 (Tuesday) – Election Day (No Classes)

November 6 (Wednesday) – Donlin’s Birthday

November 11 (Monday) – Veterans Day (No Classes)

November 28 (Thursday) - Thanksgiving (No Classes)

November 29 (Friday) – Non-Instructional Day (No Classes)

*Note that the schedule below is subject to change. Students will be notified of any changes.

Date	Class	Homework for the Week
8/27	Syllabus, Student Expectations, Google Classroom, Pearson, Student Exemplars R.2 – Basic Concepts from Algebra	
8/29	R.4 – Exponents, Roots, and Order of Operations 1.1 – Linear Equations in One Variable	R.2, R.4 1.1
9/3	1.5 – Linear Inequalities in One Variable 1.6 – Set Operations and Compound Inequalities 1.7 – Absolute Value Equations and Inequalities	
9/5	2.1 – Linear Equations in Two Variables 2.2 – The Slope of a Line	1.5, 1.6, 1.7 2.1, 2.2
9/10	2.3 – Writing Equations of Lines 2.4 – Linear Inequalities in Two Variables	

9/12	2.5 – Introduction to Relations and Functions 2.6 – Function Notation and Linear Functions	2.3, 2.4, 2.5, 2.6
9/17	3.1 – Systems of Linear Equations in Two Variables 3.2 – System of Linear Equations in Three Variables	
9/19	3.3 – Applications of Systems of Linear Equations	3.1, 3.2, 3.3
9/24	4.1 – Integer Exponents 4.2 – Scientific Notation 4.3 – Adding and Subtracting Polynomials	
9/26	4.4 – Polynomial Functions, Graphs, and Composition 4.5 – Multiplying Polynomials 4.6 – Dividing Polynomials	4.1, 4.2, 4.3, 4.4, 4.5, 4.6
10/1	Exam 1 Review	
10/3	Exam 1 – Chapters R, 1, 2, 3, 4 Between 10/1 @ 7:30 pm through Saturday, 10/5	
10/8	5.1 – Greatest Common Factors and Factoring by Grouping 5.2 – Factoring Trinomials 5.3 – Special Factoring	
10/10	5.5 – Solving Quadratic Equations Using the Zero-Factor Property 6.1 – Rational Expression and Functions; Multiplying and Dividing	5.1, 5.2, 5.3, 5.5 6.1
10/15	6.2 – Adding and Subtracting Rational Expressions 6.3 – Complex Fractions 6.4 – Equations with Rational Expressions and Graphs	
10/17	6.5 – Applications of Rational Expressions 6.6 – Variation	6.2, 6.3, 6.4, 6.5
10/22	6.6 – Variation 7.1 – Radical Expressions and Graphs 7.2 – Rational Exponents 7.3 – Simplifying Radicals, the Distance Formula, and Circles	
10/24	7.3 – Simplifying Radicals, the Distance Formula, and Circles 7.4 – Adding and Subtracting Radical Expressions 7.5 – Multiplying and Dividing Radical Expressions 7.6 – Solving Equations with Radicals	6.6 7.1, 7.2, 7.3, 7.4, 7.5, 7.6
10/29	7.7 – Complex Numbers 8.1 – The Square Root Property and Completing the Square 8.2 – The Quadratic Formula	
10/31	8.3 – Equations that Lead to Quadratic Methods 8.4 – Formulas and Further Applications 8.5 – Polynomial and Rational Inequalities	7.7 8.1, 8.2, 8.3, 8.4, 8.5
11/5	Election Day (No Classes)	

11/7	Exam 2 Review Exam 2 – Chapter 5, 6, 7, 8 Between 11/4 through Sunday, 11/8	
11/12	9.1 – Review of Operation and Composition 9.3 – More About Parabolas and Their Applications 10.2 – Exponential Functions	
11/14	10.2 – Exponential Functions 10.3 – Logarithmic Functions 10.4 – Properties of Logarithms	9.1, 9.3, 10.2, 10.3, 10.4, 10.5
11/19	10.5 – Common and Natural Logarithms 10.6 – Exponential and Logarithmic Equations; Further Applications 11.4 – Graphs and Applications of Rational Functions	
11/21	12.1 – Circles Revisited and Ellipses 12.3 – Nonlinear Systems of Equations	10.6 11.4 12.1, 12.3
11/26	12.4 – Second Degree Inequalities, Systems of Inequalities, and Linear Programming	
11/28	Thanksgiving Day (No Classes)	
12/3	Exam 3 Review	12.4
12/5	Exam 3 – Chapters 9, 10, 11, & 12 Between 12/3 @ 7:30 pm through Saturday, 12/7	
12/10	Final Exam Review	Use this time to catch up on
12/12	Final Exam Review	Homework and Exemplars
12/17	No Scheduled Class (Final Exams Week) – Optional Final Exam Review	
12/19	Final Exam: 5:30 pm – 7:30 pm Final Due Date for Pearson Homework and Exemplars: 12/21 @ 11:59 pm	

Chapter R

Section R.2 Basic Concepts from Algebra

OB.1 – Write Sets using Set Notation

OB.2 – Use Number Lines

OB.3 – Classify Numbers

OB.4 – Find Additive Inverses

OB.5 – Use Absolute Value

OB.6 – Use Inequality Symbols

Section R.4 Exponents, Roots, and Order of Operations

OB.1 – Add Real Numbers

- ~~OB.2 – Subtract Real Numbers~~
 OB.3 – Use the rules for Order of Operations
~~OB.4 – Multiply Real Numbers~~
~~OB.5 – Find Reciprocals and Divide Real Numbers~~

Chapter 1

Section 1.1 – Linear Equations in One Variable

- OB.1 – Distinguish between Expressions and Equations
 OB.2 – Identify Linear Equations
 OB.3 – Solve Linear Equations using the Addition and Multiplication Properties of Equality
 OB.4 – Solve Linear Equations using the Distributive Property
 OB.5 – Solve Linear Equations with Fractions or Decimals
 OB.6 – Identify Conditional Equations, Contradictions, and Identities

Section 1.5 – Linear Inequalities in One Variable

- OB.1 – Graph Intervals on a Number Line
 OB.2 – Solve Linear Inequalities using the Addition Property
 OB.3 – Solve Linear Inequalities using the Multiplication Property
 OB.4 – Solve Linear Inequalities with Three Parts
~~OB.5 – Solve Applied Problems Using Linear Inequalities~~

Section 1.6 – Set Operations and Compound Inequalities

- OB.1 – Recognize Set Intersection and Union
 OB.2 – Find the Intersection of Two Sets
 OB.3 – Solve Compound Inequalities with the word *and*
 OB.4 – Find the Union of Two Sets
 OB.5 – Solve Compound Inequalities with the word *or*

Section 1.7 – Absolute Value Equations and Inequalities

- OB.1 – Use the Distance Definition of Absolute Value
 OB.2 – Solve Equations of the form $|ax + b| = k$, for $k > 0$
 OB.3 – Solve Inequalities of the form $|ax + b| < k$ and of the form $|ax + b| > k$, for $k > 0$
 OB.4 – Solve Absolute Value Equations that involve rewriting
 OB.5 – Solve Equations of the form $|ax + b| = |cx + d|$
 OB.6 – Solve Special Cases of Absolute Value Equations and Inequalities

Chapter 2

Section 2.1 – Linear Equations in Two Variables

- OB.1 – Interpret a Line Graph
 OB.2 – Plot Ordered Pairs
 OB.3 – Find Ordered Pairs that satisfy a given Equation
 OB.4 – Graph Lines
 OB.5 – Find x - and y -intercepts
 OB.6 – Graph Equations of Horizontal and Vertical Lines
 OB.7 – Find the Midpoint of a Line Segment

Section 2.2 – The Slope of a Line

- OB.1 – Find the Slope of a Line given Two Points on the Line
 OB.2 – Find the Slope of a Line given an Equation of the Line
 OB.3 – Graph a Line given its Slope and a Point on the Line
 OB.4 – Determine whether Two Lines are Parallel, Perpendicular, or neither using Slope
 OB.5 – Solve problems involving Average Rate of Change

Section 2.3 – Writing Equations of Lines

OB.1 – Write an Equation of a Line given its Slope and y-intercept

OB.2 – Graph a Line using its Slope and y-intercept

OB.3 – Write an Equation of a Line given its Slope and a Point on the Line

OB.4 – Write an Equation of a Line given Two Points on the Line

OB.5 – Write Equations of Horizontal and Vertical Lines

OB.6 – Write an Equation of a Line Parallel or Perpendicular to a given Line

~~OB.7 – Write an Equation of a Line that Models Real Data~~

Section 2.4 – Linear Inequalities in Two Variables

OB.1 – Graph Linear Inequalities in Two Variables

OB.2 – Graph the Intersection of Two Linear Inequalities

OB.3 – Graph the Union of Two Linear Inequalities

Section 2.5 – Introduction to Relations and Functions

OB.1 – Devine and Identify Relations and Functions

OB.2 – Find the Domain and Range

OB.3 – Identify Functions defined by Graphs and Equations

Section 2.6 – Function Notation and Linear Functions

OB.1 – Use Function Notation

OB.2 – Graph Linear and Constant Functions

Chapter 3**Section 3.1 – Systems of Linear Equations in Two Variables**

OB.1 – Determine whether an Ordered Pair is a Solution of a Linear System

OB.2 – Solve Linear Systems by Graphing

OB.3 – Solve Linear Systems (with Two Equations and Two Variables) by Substitution

OB.4 – Solve Linear Systems (with Two Equations and Two Variables) by Elimination

OB.5 – Solve Special Systems

Section 3.2 – System of Linear Equations in Three Variables

OB.1 – Understand the Geometry of Systems of Three Equations in Three Variables

OB.2 – Solve Linear Systems (with Three Equations and Three Variables) by Elimination

OB.3 – Solve Linear Systems (with Three Equations and Three Variables) in which some of the Equations have missing Terms

OB.4 – Solve Special Systems

Section 3.3 – Applications of Systems of Linear Equations

OB.1 – Solve Geometry Problems using Two Variables

~~OB.2 – Solve Money Problems using Two Variables~~

OB.3 – Solve Mixture Problems using Two Variables

OB.4 – Solve Distance-Rate-Time Problems using Two Variables

OB.5 – Solve Problems with Three Variables using a System of Three Equations

Chapter 4**Section 4.1 – Integer Exponents**

OB.1 – Use the Product Rule for Exponents

OB.2 – Define 0 and Negative Exponents

OB.3 – Use the Quotient Rule for Exponents

OB.4 – Use the Power Rules for Exponents

OB.5 – Simplify Exponential Expressions

Section 4.2 – Scientific Notation

OB.1 – Write Numbers in Scientific Notation

OB.2 – Convert Numbers in Scientific Notation to Standard Notation

OB.3 – Use Scientific Notation in Calculations

Section 4.3 – Adding and Subtracting Polynomials

OB.1 – Define and Classify Polynomials

OB.2 – Add and Subtract Polynomials

Section 4.4 – Polynomial Functions, Graphs, and Composition

OB.1 – Recognize and Evaluate Polynomial Functions

OB.3 – Add and Subtract Polynomial Functions

OB.5 – Find the Composition of Functions

Section 4.5 – Multiplying Polynomials

OB.1 – Multiply Terms

OB.2 – Multiply any Two Polynomials

OB.3 – Multiply Binomials

OB.4 – Find the Product of a Sum and Difference of Two Terms

OB.5 – Find the Square of a Binomial

OB.6 – Multiply Polynomial Functions

Section 4.6 – Dividing Polynomials

OB.1 – Divide a Polynomial by a Monomial

OB.2 – Divide a Polynomial by a Polynomial of Two or More Terms

OB.3 – Divide Polynomial Functions

Chapter 5

Section 5.1 – Greatest Common Factors and Factoring by Grouping

OB.1 – Factor out the Greatest Common Factor

OB.2 – Factor by Grouping

Section 5.2 – Factoring Trinomials

OB.1 – Factor Trinomials when the Coefficient of the Second-Degree Term is 1

OB.2 – Factor Trinomials by Grouping when the Coefficient of the Second-Degree Term is not 1

OB.3 – Factor Trinomials using the FOIL method when the Coefficient of the Second-Degree Term is not 1

OB.4 – Factor using Substitution

Section 5.3 – Special Factoring

OB.1 – Factor a Difference of Squares

OB.2 – Factor a Perfect Square Trinomial

OB.3 – Factor a Difference of Cubes* (formula provided)

OB.4 – Factor a Sum of Cubes* (formula provided)

Section 5.5 – Solving Quadratic Equations Using the Zero-Factor Property

OB.1 – Use the Zero-Factor Property

OB.2 – Solve Applied Problems that require the Zero-Factor Property

~~OB.3 – Solve a Formula for a specified Variable, where Factoring is necessary~~

Chapter 6

Section 6.1 – Rational Expression and Functions; Multiplying and Dividing

OB.1 – Define Rational Expression

OB.2 – Define Rational Functions and give their Domains

OB.3 – Write Rational Expressions in Lowest Terms

OB.4 – Multiply Rational Expressions

~~OB.5 – Find Reciprocals of Rational Expressions~~

OB.6 – Divide Rational Expressions

Section 6.2 – Adding and Subtracting Rational Expressions

OB.1 – Add and Subtract Rational Expressions with the same Denominator

OB.2 – Find a Least Common Denominator

OB.3 – Add and Subtract Rational Expressions with different Denominators

Section 6.3 – Complex Fractions

OB.1 – Simplify Complex Fractions by Simplifying the Numerator and Denominator

OB.2 – Simplify Complex Fractions by Multiplying by a Common Denominator

~~OB.3 – Compare the two methods of Simplifying Complex Fractions~~

OB.4 – Simplify Rational Expressions with Negative Exponents

Section 6.4 – Equations with Rational Expressions and Graphs

OB.1 – Determine the Domain of the Variable in a Rational Equation

OB.2 – Solve Rational Equations

Section 6.5 – Applications of Rational Expressions~~OB.1 – Find the Value of an Unknown Variable in a Formula~~

OB.2 – Solve a Formula for a Specified Variable

OB.3 – Solve Applications using Proportions

OB.4 – Solve Applications about Distance, Rate, and Time

OB.5 – Solve Applications about Work Rates

Section 6.6 – Variation

OB.1 – Write an Equation Expression Direct Variation

OB.2 – Find the Constant of Variation, and Solve Direct Variation Problems

OB.3 – Solve Inverse Variation Problems

OB.4 – Solve Joint Variation Problems

OB.5 – Solve Combined Variation Problems

Chapter 7**Section 7.1 – Radical Expressions and Graphs**

OB.1 – Find Roots of Numbers

OB.2 – Find Principal Roots

OB.4 – Find nth Roots of Nth Powers

~~OB.5 – Use a Calculator to find Roots~~**Section 7.2 – Rational Exponents**

OB.1 – Use Exponential Notation for nth Roots

OB.2 – Define and use Expressions of the form $a^{m/n}$

OB.3 – Convert between Radicals and Rational Exponents

OB.4 – Use the Rules for Exponents with Rational Exponents

Section 7.3 – Simplifying Radicals, the Distance Formula, and Circles

OB.1 – Use the Product Rule for Radicals

OB.2 – Use the Quotient Rule for Radicals

OB.3 – Simplify Radicals

OB.4 – Simplify Products and Quotients of Radicals

OB.5 – Use the Pythagorean Theorem

OB.6 – Use the Distance Formula

~~OB.7 – Find the Equation of a Circle given its Center and Radius (also covered in 12.1)~~**Section 7.4 – Adding and Subtracting Radical Expressions**

OB.1 – Simplify Radical Expressions involving Addition and Subtraction

Section 7.5 – Multiplying and Dividing Radical Expressions

OB.1 – Multiply Radical Expressions

OB.2 – Rationalize Denominators with One Radical Term

OB.3 – Rationalize Denominators with Binomials involving Radicals

OB.4 – Write Radical Quotients in Lowest Terms

Section 7.6 – Solving Equations with Radicals

OB.1 – Solve Radical Equations using the Power Rule

OB.2 – Solve Radical Equations that require additional steps (excluding Example 5)

OB.3 – Solve Radical Equations with indexes greater than 2

~~OB.4 – Use the Power Rule to Solve a Formula for a specified Variable~~

Section 7.7 – Complex Numbers

OB.1 – Simplify Numbers of the form $-b$, where $b > 0$

OB.2 – Identify Subsets of the Complex Numbers

Chapter 8

Section 8.1 – The Square Root Property and Completing the Square

OB.1 – Review the Zero-Factor Property

OB.2 – Learn the Square Root Property

OB.3 – Solve Quadratic Equations of the form $(ax + b)^2 = c$ by extending the Square Root Property

OB.4 – Solve Quadratic Equations by Completing the Square

OB.5 – Solve Quadratic Equations with Nonreal Complex Solutions

Section 8.2 – The Quadratic Formula

~~OB.1 – Derive the Quadratic Formula~~

OB.2 – Solve Quadratic Equations using the Quadratic Formula

~~OB.3 – Use the Discriminant to Determine Number and Type of Solutions~~

Section 8.3 – Equations that Lead to Quadratic Methods

OB.1 – Solve Rational Equations that lead to Quadratic Equations

~~OB.2 – Solve Applied Problems involving Quadratic Equations~~

OB.3 – Solve Radical Equations that lead to Quadratic Equations

OB.4 – Solve Equations that are Quadratic in Form* (new)

Section 8.4 – Formulas and Further Applications

OB.2 – Solve Applied Problems Using the Pythagorean Theorem

Section 8.5 – Polynomial and Rational Inequalities

OB.1 – Solve Quadratic Inequalities

OB.2 – Solve Polynomial Inequalities of Degree 3 or greater

OB.3 – Solve Rational Inequalities

Chapter 9

Section 9.1 – Review of Operation and Composition

OB.1 – Review Operations of Functions

OB.2 – Find a Difference Quotient

OB.3 – Form Composite Functions ~~and find their Domains~~

Section 9.3 – More About Parabolas and Their Applications

OB.1 – Find the Vertex of a Vertical Parabola (as in Example 3, do not Complete the Square)

OB.2 – Graph a Quadratic Function

~~OB.3 – Use the Discriminant to Find the Number of x intercepts~~

Chapter 10

Section 10.2 – Exponential Functions

~~OB.1 – Evaluate Exponential Expressions using a Calculator~~

OB.2 – Define and Graph Exponential Functions (excluding Example 4)

OB.3 – Solve Exponential Equations of the form $a^x = a^k$ for x

Section 10.3 – Logarithmic Functions

OB.1 – Define a Logarithm

OB.2 – Convert between Exponential and Logarithmic forms, ~~and Evaluate Logarithms~~

OB.3 – Solve Logarithmic Equations of the form $\log_a b = k$ for a , b , or k

OB.4 – Use the Definition of Logarithm to Simplify Logarithmic Expressions

OB.5 – Define and Graph Logarithmic Functions

Section 10.4 – Properties of Logarithms

OB.1 – Use the Product Rule for Logarithms

OB.2 – Use the Quotient Rule for Logarithms

OB.3 – Use the Power Rule for Logarithms

OB.4 – Use Properties to write alternative forms of Logarithmic Expressions

Section 10.5 – Common and Natural Logarithms

OB.1 – Evaluate Common Logarithms using a Calculator

OB.2 – Use Common Logarithms in Applications

OB.3 – Evaluate Natural Logarithms using a Calculator

OB.4 – Use Natural Logarithms in Applications

Section 10.6 – Exponential and Logarithmic Equations; Further Applications

OB.1 – Solve Equations involving Variables in the Exponents

OB.2 – Solve Equations involving Logarithms

Chapter 11

Section 11.4 – Graphs and Applications of Rational Functions

OB.2 – Find Asymptotes of the Graph of a Rational Function

OB.3 – Graph Rational Functions (excluding Example 7 & 8)

Chapter 12

Section 12.1 – Circles Revisited ~~and Ellipses~~

OB.1 – Graph Circles

OB.2 – Write an Equation of a Circle given its Center and Radius

OB.3 – Determine the Center and Radius of a Circle given its Equation

Section 12.3 – Nonlinear Systems of Equations

OB.1 – Solve a Nonlinear System using Substitution

OB.2 – Solve a Nonlinear System with Two Second-Degree Equations using Elimination

OB.3 – Solve a Nonlinear System that requires a combination of methods

Section 12.4 – Second Degree Inequalities, Systems of Inequalities, and Linear Programming

OB.1 – Graph Second-Degree Inequalities

OB.2 – Graph the Solution Set of a System of Inequalities (excluding Example 7)

FINAL WORDS FROM THE INSTRUCTOR

"I didn't get there by wishing for it or hoping for it, but by working for it."

- Estée Lauder

Math is a difficult subject for many people because of the way the content stacks upon itself. For example, I cannot raise a number to a given exponent if I don't know how to multiply, I cannot multiply numbers if I don't know how to add them, and I cannot add if I don't know how to count. Every skill in math sits on a step, below that step are all the stairs of things previously learned to reach that step while above that step are the things yet to learn. Unfortunately, just like in real life, walking the stairs kinda sucks; most people would rather ride the escalator or risk the germs incubating in the elevator or, if you're like me, it would be awesome if there were someone there to just wheel you around while you sat in a comfy chair. But again, just like in real life, you'll be forced to take the stairs because machines break down and as my mother tells me, "no one is pushing your lazy ass around." Mother's love aside, I previously mentioned that math is a learned skill and as a learned skill it has much in common with playing just about any sport. Take the "Big Game" for example. How does one prepare for this event? I would assume that there would be weeks, if not months, of conditioning, training, and strategizing to maximize performance and provide the best opportunity to "take the win" as the saying goes (I'm assuming all this because I've never played "the sports" myself, I was an indoor recess kind of kid). So tying this back to math, students in a math class can expect to practice their math skills outside of class, i.e. homework. Unfortunately, the term "homework" comes with a number of negative connotations learned from way back in grade school when a task was assigned by the teacher and your primary goal was to complete such a task so you could be done with it all because you felt that you had better things to do with your time. Learning does not simply materialize from completing one task after another; rather the labor of the task is meant to hone your senses in a particular fashion and makes you stronger for having done the work. You have chosen an academic path that will push you to determine what it means for you to be successful. You need to determine how much time to put into your course work, honestly figure out when you need to practice more or have had enough, and, most importantly, when to reach out for help. Thus, onto the scene, enters me, your instructor. Consider me to be the Yoda to your Luke Skywalker or the Mr. Miyagi to your Daniel-san. During class there is a great deal of content to cover and I can help set you up and show you the basics of how to approach each problem, but your understanding will be developed and solidified as you practice on your own, exercise your force powers, wax-on/wax-off, take the stairs if you will. I believe that just about anyone can learn the math I teach, but I also recognize the struggle of learning everything in only 15 weeks while also balancing work, family, and all manner of other responsibilities; this is the truly challenging part for most students. However, walking away with a win doesn't always come easy, just ask Luke Skywalker and Daniel-san, you can find them taking the stairs.

For my first wax on/wax off moment, I want you to keep two things in mind, as far as math is concerned, that are illustrated in the pictures below and on the following page:

1. The language and symbology of mathematics is exact. This is not an art class, and the positioning of numbers, letters, and the lines between them all have a purpose.
2. Much of the solution to a math problem is implied by the smallest of details and it will be up to you to bring the knowledge needed to solve these problems. This is very much unlike, for instance, an essay question, where you can sometimes extract part of your answer from the question or the way it is framed.

“ — ”

What does this symbol represent?

$$-8 - \left(\frac{9}{5}\right)^{-3} = 42$$

Symbol here will invert the fraction.

This signifies that the number 8 is negative.

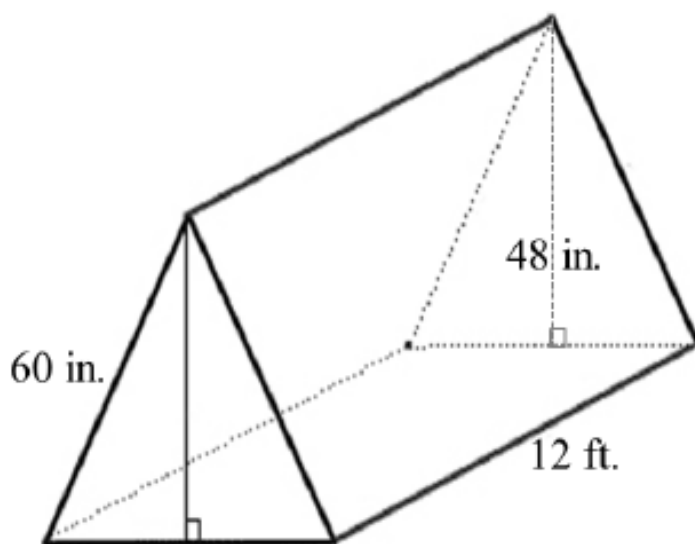
Represents the subtraction operation.

This is one way to show the division operation.

A pair of lines denotes equivalency.

$$\overset{\text{This signifies that the number 8 is negative.}}{\text{=}}8 \overset{\text{Represents the subtraction operation.}}{-} \left(\overset{\text{Symbol here will invert the fraction.}}{\text{=}}\frac{9}{5}\right)^{\overset{\text{Symbol here will invert the fraction.}}{\text{=}}3} \overset{\text{A pair of lines denotes equivalency.}}{=} 42$$

How do you solve the following problem?



Find the Volume of the Prism.

$$V = Bh$$

There is a Right Triangle here and Pythagorean Theorem can be applied.

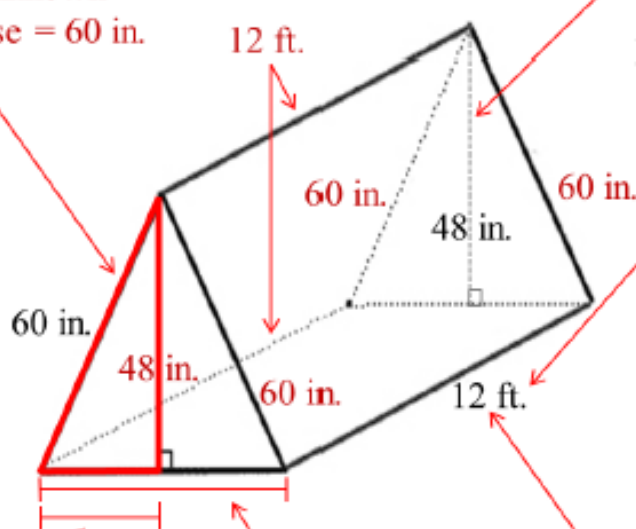
Leg 1 = 48 in.

Leg 2 = unknown

Hypotenuse = 60 in.

Height of the Triangle, but not Height of the Prism.

Prism is a Triangular Prism and the Base of the Prism is a Triangle.



Find the Volume of the Prism.

h = Height of the Prism (this is different from the Height of the Triangle)

$$V = Bh$$

B = the Area of the Base (The Base is a Triangle, so the Area Formula for a Triangle is needed: $A = \frac{bh}{2}$ where ' b ' is the Base of the Triangle and ' h ' is the Height of the Triangle.)

This is the Length of the Base of the Triangle and is needed to calculate the Area of the Base of the Prism.

Units here are in 'feet' but other measurements are in 'inches'. All measurements need to be converted to the same Units of Measure, either feet or inches.

Pythagorean Theorem ($a^2 + b^2 = c^2$, solve for ' a ' or ' b ') must be used to find this length, then multiply that value by 2 in order to find the Length of the Base of the Triangle.