## MATH 82 – ALGEBRAIC FOUNDATIONS
4 Credits, CRN: 64231
TR, 5:30 pm – 7:20 pm; 8/20 – 12/14; Hale Palanakila 214

INSTRUCTOR: David W.K.W.L. DONLIN, Lecturer, Mathematics
OFFICE: Hale Mana'opono 110A (DON'T GO HERE!! I don't use this office.)
OFFICE HOURS: MTWR, 5:00 pm – 5:30 pm, Hale Palanakila 214
(students may drop in for help during this time,
 or by pre-arranged appointment)
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ALTERNATE Facebook: David William KWL Donlin
 CONTACT INFO: Instagram: David.William.KWL.Donlin
Twitter: @David_Donlin
Snapchat: david.donlin
Discord: Oompa.Loompa.Doompa.Dee.Daa
EFFECTIVE DATE: Fall 2018

### WINDWARD COMMUNITY COLLEGE MISSION STATEMENT
*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 the Ko'olau region of O'ahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.*

## CATALOG DESCRIPTION

MATH 82 covers elementary algebra topics. Topics include linear equations and inequalities, graphing, linear systems, properties of exponents, operations on polynomials, factoring, rational and radical expressions and equations, quadratic equations, and applications. (4 hours lecture)

Pre-Requisite(s): Satisfactory Placement, or a Grade of "C" or better in Math 21, Math 21B, Math 24, Math 28, or Math 75X.
Co-Requisite(s): None

## STUDENT LEARNING OUTCOMES

Upon completion of the course, the student will be able to:

- Use algebraic techniques to analyze and solve applied problems
- Graph linear and quadratic equations
- Solve equations, inequalities, and systems
- Utilize precise mathematical language and symbols to effectively communicate mathematics in written and/or oral form

## COURSE TASKS

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, group work, appropriate technologies, and projects will also be used as appropriate. After the completion of each unit, a review and exam will be conducted.

## ASSESSMENT TASKS AND GRADING

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 over concepts and skill covered in 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.

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.

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

1. **Homework**. Homework sets will be assigned through MyMathLab (registration directions at the end of this syllabus). Homework assignments are worth up to 2 points and are graded on completeness. Homework assigned during any given week will be due at the first class meeting on the following week; typically this will be on a Tuesday. You are encouraged to write out problems and show your work to make it more useful to study with and easier for myself or others to help with errors. There is a total of 92 possible points for completion of all 46 online homework assignments; however, students will be graded on 88 points, or responsible for completing only 44 assignments. The homework score will then be averaged in to the final grade as if it were an exam out of 88 points, for the benefit to the student

2. **Graded Homework.** Occasionally a short homework set of about 3 or 4 problems may be assigned to be graded more critically. Clarity of thought process will be important to earn the full 2 or 3 points per problem, depending on the problem (i.e. show your work, write out your thought process and present your work in a neat and organized manner).

3. **Class Activity**. Class activities are done in class only. Class activities will be graded on a 0 - 3 point scale. There is no make-up for a missed class activity. Students must be present in class to participate.

4. **Weekly Quizzes.** Weekly quizzes will be graded on a 0 - 5 point scale and will take place at the last meeting of every week. There is no make-up for a missed weekly quiz. Students must be present in class to participate.

5. **Unit Exam**. The five unit exams are given in class at the end of each unit. A Unit Exam will be 75 minutes in length and will be scored on a 100-point scale. The student must achieve a minimum of 70% of the possible points for each unit test. Without this minimum

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requirement, a passing grade for the course is not possible.

Note: A completed Unit Exam Review Assignment is the best way to prepare for the test at the end of each unit.  The assigned Unit Exam Review Assignment must be completed and turned in to the instructor in order to sit for the Unit Exam.  The completed Unit Exam Review Assignment is your "ticket" to take the Unit Exam!  If the Unit Exam Review Assignment is not completed or not turned in, a score of 0 will be recorded for the Unit Exam. In this case, the student will have only the retest opportunity to earn a passing grade for this Unit Exam.

**Retests.**  After each Unit Exam, a Retest Deadline will be given.  One Retest is allowed without penalty for each module test if it is done by the specified Unit Retest Deadline.  The better of the two test scores will count towards your grade.  No retests will be given after the unit retest deadline.  Retests are arranged by appointments with your instructor, and Retests are taken in the WCC Testing Center in the Library.

To take a retest, all of the following must be met:
a) All problems from the Unit Exam at the end of the unit must be completed and turned in to the instructor.
b) The student must meet with the instructor to review mistakes made on the first form of the test taken.
c) Additional math activities as designated by the instructor must be completed.
d) The retest must be taken by the designated unit retest deadline.

6. **Final Exam**.  The Final Exam will cover the concepts and skills in the entire course.  The Final Exam is 2 hours in length and will be scored on a 150-point scale.  The student must achieve a minimum of 60% of the possible points for the final exam.  Without this minimum requirement, a passing grade for the course is not possible.  No retesting for the Final Exam is available unless the 60% minimum is not met and the 70% minimum per Unit Test was met. In that event, a retest of the Final Exam is possible; however, the maximum score is 60% of the possible points for the Final Exam.
      During the Final Exam students will be allowed a single 3x5 index cards, hand written on both sides.  This card will be collected at the end of the Final Exam.

   **Make-up.**  Make-up opportunity for a Unit Exam or Final Exam will be possible only upon a timely presentation of a serious and justified explanation of the student's absence from the class test. The instructor has the right to request documentation of the student's absence from the class and to determine if the absence from the class test is justified.  A make-up test must be taken within one week of the in-class test unless otherwise specified by the instructor. **No more than one exam may be taken by a student on a make-up basis.**

7. Calculator use is **not** allowed on quizzes, tests and exams.  However students may use calculators during homework assignments to speed up calculations.

8. **Course Grade**.  Grades used are A, B, C, F, N or CR, NC.  Students must request for CR/NC grading by the designated deadline (usually the same as the Withdrawal Deadline).  Minimum competencies are expected of students.  Each student must:
   a. **score at least 70% of the total points on each unit exam** and
   b. **score at least 60% of the total points on the final exam.**

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**Until these minimums are met, grades of A, B, C, or CR <u>cannot</u> be assigned.**  In other words, if a student does not meet the two criteria above, they must obtain the F grade for the course, unless they are qualified for an N or NC grade.  If there is only a *small* part of the minimum competencies a student has not met, that student may request an I grade so that retesting opportunities, if still available, can be provided beyond the final exam period to allow the student to complete the course competencies.

If a student has achieved a minimum of 70% of the possible points for each unit test and a minimum of 60% of the possible points for the final exam, then a letter grade for the course will be assigned according to the level of achievement as provided in the table below:

| Grade | Definition |
|---|---|
| A | 90% – 100% of the cumulative points possible. |
| B | 80% –  89% of the cumulative points possible |
| C | 68% –  79% of the cumulative points possible |
| F | below 68% of the cumulative points possible. |
| N | definition listed below |
| Cr | 68% – 100% of the cumulative points possible |
| NC | less than 70% of the cumulative points possible |

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.

## LEARNING RESOURCES

- <u>Beginning Algebra</u>, 11th ed. by Lial, Hornsby, & McGinnis
- MyMathLab: www.pearsonmylabandmastering.com
- WCC Produced Tutorial Videos: https://windward.hawaii.edu/jitmath/
- Math Lab: La`akea (Library Learning Commons) Room 222 (Hours of Operation TBA)| http://windward.hawaii.edu/Math_Lab/
- Kahn Academy Videos: http://www.khanacademy.org
- Testing Center: La`akea (Library Learning Commons) Room 228
  Phone number: 235-7498
  http://windward.hawaii.edu/Testing_Center/index.php

## ADDITIONAL INFORMATION

*Skills or Competencies/Responsibilities of Students*
**Success in this course will be enhanced by:**
  *1.* a positive, inquiring attitude towards learning mathematics;
  *2.* setting aside adequate time for studying and working of problems;
  *3.* reading the text carefully and making use of other learning materials whenever necessary;
  *4.* seeking assistance from the instructor and the Math Lab personnel whenever necessary;

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**5.** completing assignments by the designated date;
**6.** regular class attendance, participation and maintaining accurate class notes.

Past students who have successfully completed this class leave the following advice for new students:
1. Do the fricken homework, or else u won't be ready for the test!
2. Try your best not to miss class, or else you will be lost!
3. Come early to class and ask questions one and one.

## DISABILITIES ACCOMMODATIONS
If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale ʻĀkoakoa 213 for more information.

## TITLE IX
Title IX prohibits discrimination on the basis of sex in education programs and activities that receive federal financial assistance. Specifically, Title IX prohibits sex discrimination; sexual harassment and gender-based harassment, including harassment based on actual or perceived sex, gender, sexual orientation, gender identity, or gender expression; sexual assault; sexual exploitation; domestic violence; dating violence; and stalking. For more information regarding your rights under Title IX, please visit: https://windward.hawaii.edu/Title_IX/.

Windward Community College is committed to the pursuit of equal education. If you or someone you know has experienced sex discrimination or gender-based violence, Windward CC has resources to support you. To speak with someone confidentially, contact Karla Silva-Park, Mental Health Counselor, at 808-235- 7468 or karlas@hawaii.edu or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235- 7354 or kaahualo@hawaii.edu. To make a formal report, contact the Title IX Coordinator at 808-235-7393 or wcctix@hawaii.edu.

## 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: Alakai 121
Phone: 808-235-7422
Email: wccaa@hawaii.edu

## TENTATIVE SCHEDULE

**DONLIN – Fall 2018; TR 5:30 – 7:20 PM (CRN: 64231)**
**Academic Calendar:** http://windward.hawaii.edu/academics/Calendar/
August 28 – Last Day for 100% Refund
September 11 – Last Day for 50% Refund, Last Day to Withdraw *without* a "W" Grade
October 29 – Last Day to Withdraw *with* a "W" or Establish Credit/No-Credit and Audit Options

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| Date | Class | Homework Pacing Guide |
|---|---|---|
| **8/21** | **Syllabus,**<br>2.3 - More on Solving Linear Equations<br>2.4 - An Introduction to Applications of Linear Equations | Homework Sections Completed: |
| **8/23** | 2.5 - Formulas and Additional Applications from Geometry<br>2.6 - Ratio, Proportions, and Percent | |
| **8/28** | 2.7 - Further Applications of Linear Equations<br>2.8 - Solving Linear Equalities | 2.3, 2.4, 2.5, 2.6 |
| **8/30** | 3.1 - Linear Equations in Two Variables; Rectangular Coordinate System<br>3.2 - Graphing Linear Equations in Two Variables | |
| **9/4** | 3.3 - The Slope of a Line<br>3.4 - Writing and Graphing Equations of Lines | 2.7, 2.8, 3.1, 3.2, |
| **9/6** | 3.5 - Graphing Linear Inequalities in Two Variables<br>3.6 - Introduction to Functions | |
| **9/11** | **Unit 1 Review & Exam** | 3.3, 3.4, 3.5, 3.6 |
| **9/13** | 4.1 - Solving Systems of Linear Equations by Graphing<br>4.2 - Solving Systems of Linear Equations by Substitution | |
| **9/18** | 4.3 - Solving Systems of Linear Equations by Elimination<br>4.4 - Applications of Linear Systems | 4.1, 4.2, |
| **9/20** | 5.1 - The Product Rule and Power Rules for Exponents<br>5.2 - Integer Exponents and the Quotient Rule | |
| **9/25** | 5.3 - An Application of Exponents: Scientific Notation<br>5.4 - Adding and Subtracting Polynomials; Graphing Simple Polynomials | 4.3, 4.4, 5.1, 5.2 |
| **9/27** | 5.5 - Multiplying Polynomials<br>5.7 - Dividing Polynomials | |
| **10/2** | **Unit 2 Review & Exam** | 5.3, 5.4, 5.5, 5.7 |
| **10/4** | 6.1 - The Greatest Common Factor; Factoring by Grouping<br>6.2 - Factoring Trinomials | |
| **10/9** | 6.3 - More on Factoring Trinomials<br>6.4 - Special Factoring Techniques | 6.1, 6.2 |
| **10/11** | 6.5 - Solving Quadratic Equations by Factoring<br>6.6 - Applications of Quadratic Equations | |
| **10/16** | **Unit 3 Review & Exam** | 6.3, 6.4, 6.5, 6.6 |
| **10/18** | 7.1 - The Fundamental Property of Rational Expressions<br>7.2 - Multiplying and Dividing Rational Expressions | |

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|---|---|---|
| **10/23** | 7.4 - Adding and Subtracting Rational Expressions (review 7.3 - LCD) <br> 7.5 - Complex Fractions | 7.1, 7.2 |
| **10/25** | 7.6 - Solving Equations with Rational Expressions <br> 7.7 - Applications of Rational Expressions | |
| **10/30** | **Unit 4 Review & Exam** | 7.4, 7.5, 7.6, 7.7 |
| **11/1** | 8.1 - Evaluating Roots <br> 8.2 - Multiplying, Dividing, and Simplifying Radicals | |
| **11/6** | **Election Day** | |
| **11/8** | 8.3 - Adding and Subtracting Radicals <br> 8.4 - Rationalizing the Denominator | 8.1, 8.2 |
| **11/13** | 8.5 - More Simplifying and Operations with Radicals <br> 8.6 - Solving Equations with Radicals | 8.3, 8.4 |
| **11/15** | 8.7 - Using Rational Numbers as Exponents <br> 9.1 - Solving Quadratic Equations by the Square Root Property | 8.5, 8.6 |
| **11/20** | 9.3 - Solving Quadratic Equations by the Quadratic Formula <br> 9.5 - More on Graphing Quadratic Equations; Quadratic Functions | |
| **11/22** | **Thanksgiving Day** | |
| **11/27** | Unit 5 Review | 8.7, 9.1, 9.3, 9.5 |
| **11/29** | **Unit 5 Review & Exam** | |
| **12/4** | Final Exam Review | |
| **12/6** | Final Exam Review – Last Day of Instruction | |
| **12/11** | *Optional Review Day | |
| **12/13** | **Final Exam** | 5:30 – 7:30 pm |

## COURSE CONTENT

### *Complete Course Content*
**2.3** – More on Solving Linear Equations
1) learn and use the four steps for solving a linear equation
2) solve equations with fractions or decimals as coefficients
3) solve equations with no solution or infinitely many solutions
4) write expressions for two related unknown quantities

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**2.4** – An Introduction to Applications of Linear Equations
1) learn the six steps for solving applied problems
2) solve problems involving unknown numbers
3) solve problems involving sums of quantities
**2.5** – Formulas and Additional Applications from Geometry
2) use a formula to solve an applied problem
4) solve a formula for a specified variable
**2.6** – Ratio, Proportion, and Percent
1) write ratios
2) solve proportions
3) solve applied problems by using proportions
4) find percents and percentages
**2.7** – Further Applications of Linear Equations
1) using percent in solving problems involving rates
2) solve problems involving mixtures
3) solve problems involving simple interest
5) solve problems involving distance, rate, and time
**2.8** – Solving Linear Equalities
1) graph intervals on a number line
2) use the addition property of inequality
3) use the multiplication property of inequality
4) solve linear inequalities by using both properties of inequality
6) solve linear inequalities with three parts

**3.1** – Linear Equations in Two Variables; The Rectangular Coordinate System
1) interpret graphs
2) write a solution as an ordered pair
3) decide whether a given ordered pair is a solution of a given equation
4) complete ordered pairs for a given equation
5) complete a table of values
6) plot ordered pairs
**3.2** – Graphing Linear Equations in Two Variables
1) Graph linear equations by plotting ordered pairs
2) find intercepts
3) graph linear equations of the form $Ax+By=0$
4) graph linear equations of the form $y=k$ or $x=k$
5) use a linear equation to model data
**3.3** – The Slope of a Line
1) find the slope of a line, given two points
2) find the slope from the equation of a line
3) use slopes to determine whether two lines are parallel, perpendicular, or neither
**3.4** – Writing and Graphing Equations of Lines
1) use the slope-intercept form of the equation of a line
2) graph a line by using its slope and a point on the line
3) write an equation of a line by using its slope and any point on the line
4) write an equation of a line by using two points on the line
**3.5** – Graphing Linear Inequalities in Two Variables
1) graph linear inequalities in two variables
2) graph an inequality with a boundary line through the origin

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**3.6** – Introduction to Functions
2) Understand the definition of a function
5) use function notation

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**4.1** – Solving Systems of Linear Equations by Graphing
1) decide whether a given ordered pair is a solution of a system
2) solve linear systems by graphing
3) solve special systems by graphing
4) identify special systems without graphing
**4.2** – Solving Systems of Linear Equations by Substitution
1) solve linear systems by substitution
2) solve special systems by substitution
3) solve linear systems with fractions and decimals by substitution
**4.3** – Solving Systems of Linear Equations by Elimination
1) solve linear systems by elimination
2) multiply when using the elimination method
3)- use an alternative method to find the second value in a solution
4) solve special systems by elimination
**4.4** – Applications of Linear Systems
2) solve problems about quantities and their costs
3) solve problems about mixtures
4) solve problems about distance, rate (or speed), and time


**5.1** – The Product Rule and Power Rules for Exponents
1) use exponents
2) use product rule for exponents
3) use the rule $(a^m)^n = a^{mn}$
4) use the rule $(ab)^m = a^m b^m$
5) use the rule $(a/b)^m = (a^m)/(b^m)$
6) use combinations of rules
**5.2** – Integer Exponents and the Quotient Rule
1) use 0 as an exponent
2) use negative numbers as exponents
3) use the quotient rule for exponents
4) use combinations of rules
**5.3** – An Application of Exponents: Scientific Notation
1) express numbers in scientific notation
2) convert numbers in scientific notation to numbers without exponents
3) use scientific notation in calculations
**5.4** – Adding and Subtracting Polynomials; Graphing Simple Polynomials
1) identify terms and coefficients
2) add like terms
3) know the vocabulary for polynomials
4) evaluate polynomials
5) add and subtract polynomials
**5.5** – Multiplying Polynomials
1) multiply a monomial and a polynomial
2) multiply two polynomials
3) multiply binomials by the foil method

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**5.7** – Dividing Polynomials
1) divide a polynomial by a monomial
2) divide a polynomial by a polynomial

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**6.1** – The Greatest Common Factor; Factoring by Grouping
1) find the greatest common factor of a list of polynomials
2) factor out the greatest common factor
3) factor by grouping
**6.2** – Factoring Trinomials
1) factor trinomials with a coefficient of 1 for the second-degree term
2) factor such trinomials after factoring out the greatest common factor
**6.3** – More on Factoring Trinomials
1) factor trinomials by grouping when the coefficient of the second-degree term is not 1
2) factor trinomials using the foil method
**6.4** – Special Factoring Techniques
1) factor a difference of squares
2) factor a perfect square trinomial
**6.5** – Solving Quadratic Equations by Factoring
1) solve quadratic equations by factoring
2) solve other equations by factoring
**6.6** – Applications of Quadratic Equations
1) solve problems involving geometric figures
2) solving problems involving consecutive integers
3) solve problems by applying the Pythagorean Theorem

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**7.1** – The Fundamental Property of Rational Expressions
2) find the values of the variable for which a rational expression is undefined
3) write rational expressions in lowest terms
4) recognize equivalent forms of rational expressions
**7.2** – Multiplying and Dividing Rational Expressions
1) multiply rational expressions
2) divide rational expressions
**7.4** – Adding and Subtracting Rational Expressions (incorporate 7.3 – LCD)
1) add rational expressions having the same denominator
2) add rational expressions having different denominators
3) subtract rational expressions
**7.5** – Complex Fractions
1) simplify a complex fraction by writing it as a division problem (Method 1)
2) simplify a complex fraction by multiplying numerator and denominator by the LCD (Method 2)
**7.6** – Solving Equations with Rational Expressions
1) distinguish between operations with rational expressions and equations with terms that are rational expressions
2) solve equations with rational expressions
**7.7** – Applications of Rational Expressions
2) solve problems about distance, rate, and time
3) solve problems about work

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**8.1** – Evaluating Roots

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1) find square roots
2) decide whether a given root is rational, irrational, or not a real number
4) use the Pythagorean Theorem
5) use the distance formula
6) find cube, fourth, and other roots
**8.2** – Multiplying, Dividing, and Simplifying Radicals
1) multiply square root radicals
2) simplify radicals by using the product rule
3) simplify radicals by using the quotient rule
4) simplify radicals involving variables
5) simplify other roots
**8.3** – Adding and Subtracting Radicals
1) add and subtract radicals
2) simplify radical sums and differences
3) simplify more complicated radical expressions
**8.4** – Rationalizing the Denominator
1) rationalize denominators with square roots
2) write radicals in simplified forms
3) rationalize denominators with cube roots
**8.5** – More Simplifying and Operations with Radicals
1) simplify products of radical expressions
2) use conjugates to rationalize denominators of radical expressions
3) write radical expressions with quotients in lowest terms
**8.6** – Solving Equations with Radicals
1) solve radical equations having square rood radicals
2) identify equations with no solutions
3) solve equations by squaring a binomial
4) solve radical equations having cube root radicals
**8.7** – Using Rational Numbers as Exponents
1) define and use expressions of the form $a^{1/n}$
2) define and use expressions of the form $am^{/n}$
3) apply the rules for exponents using rational exponents
4) use rational exponents to simplify radicals

**9.1** – Solving Quadratic Equations by the Square Root Property
1) review the zero-factor property
2) solve equations of the form $x^2=k^2$, where $k>0$
3) solve the equations of the form $(ax+b)^2=k$, where $k>0$
**9.3** – Solving Quadratic Equations by the Quadratic Formula
1) identify the values of $a$, $b$, and $c$ in a quadratic equations
2) use the quadratic formula to solve quadratic equations
3) solve quadratic equations with only one solution
4) solve quadratic equations with fractions
**9.5** – More on Graphing Quadratic Equations; Quadratic Functions
1) graph quadratic equations of the form $y=ax^2+bx+c$ $(a\neq0)$

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**Pearson**

MyMathLab®

**To register for Math 82 - Fall 2018 :**
1. Go to www.pearson.com/mylab.
2. Under Register, select **Student**.
3. Confirm you have the information needed, then select **OK! Register now**.

4. Enter your instructor's course ID: **donlin88482**, and **Continue**.
5. Enter your existing Pearson account **username** and **password** to **Sign In**.
   You have an account if you have ever used a MyLab or Mastering product.
      » If you don't have an account, select **Create** and complete the required fields.
      6. Select an access option.
      » Enter the access code that came with your textbook or that you purchased separately from the bookstore.
      » If available for your course,
         • Buy access using a credit card or PayPal, or
         • **Get temporary access by <u>selecting the link near the bottom of the page</u>**.
7. From the You're Done! page, select **Go To My Courses** .
8. On the My Courses page, select the course name **Math 82 - Spring 2018** to start your work.

**To sign in later:**
1. Go to www.pearson.com/mylab.
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password,** and **Sign In**.
4. Select the course name **Math 82 - Fall 2018** to start your work.

**To upgrade temporary access to full access:**
1. Go to www.pearson.com/mylab.
2. Select **Sign In** .
3. Enter your Pearson account **username** and **password,** and **Sign In**.
4. Select **Upgrade access** for **Math 82 - Fall 2018.**
5. Enter an access code or buy access with a credit card or PayPal.

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Have you ever heard of Pokemon or Yu-Gi-Oh?  These are what those in the know call collectable trading card games.  To over simplify the matter and gleefully run the risk of annoying those in the know, these are essentially card games played with decks of colorful playing cards that have statistics on them (i.e. numbers representing attributes) that are used to define the various characters drawn on each card.  The game itself is not consequential to my point, what is important is the behavior of the players of said games.  To be blunt, the people who play these games are nerds, weebs to be more specific.  While they mostly speak words we can all understand, the totality of their conversation comes across as nothing more than gibberish.  They are also acutely detail oriented.  While two cards might look the same to you or me, game "experts" will swear that one is infinitely better or worse than the other.  They will also pour hours into reviewing their cards to catalog strengths and weaknesses, spend the time working out how cards can be played in combination during a game, and delve into the meta, the wealth of knowledge beyond just picking up some cards and playing the game.  Their hobby is essentially homework, and like I said, these people are nerds; just like those who learn to speak the language of the Elves from *The Lord of the Rings*, or people who go to Klingon Summer camp, or people who learn the Jedi code and train to fight with a lightsaber (I swear these are real things, look it up on Google).  All of these people are nerds, just like the people who came up with the math you're about to study in this course.  And just like those sci-fi/fantasy/weeb nerds, your travels into the world of mathematics will require that you learn intricate language and symbology to the point of exacting detail as well as draw upon knowledge and skills that we will build up during our class sessions to solve previously incomprehensible problems.  I look forward to being your Gandalf/Yoda/Mr. Miyagi.

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 two pictures on the following pages:
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?

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

---

Symbol here will invert the fraction.
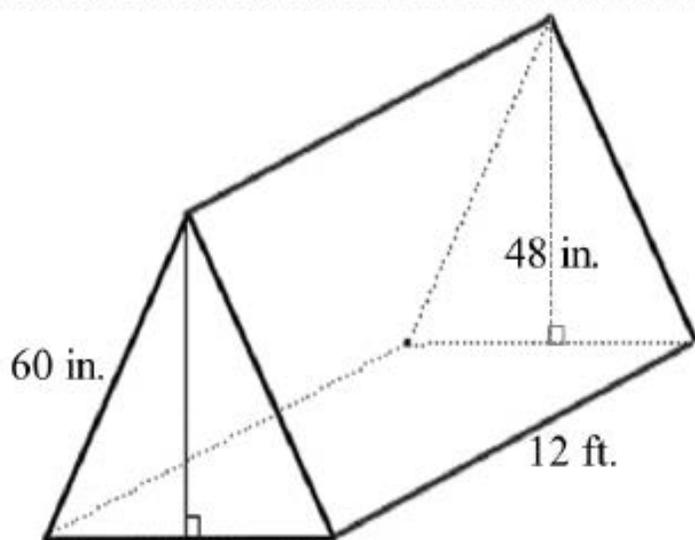
This signifies that the number 8 is negative.

A pair of lines denotes equivalency.

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

Represents the subtraction operation.

This is one way to show the division operation.

## How do you solve the following problem?

Find the Volume of the Prism.

$$V = Bh$$

48 in.

60 in.

12 ft.

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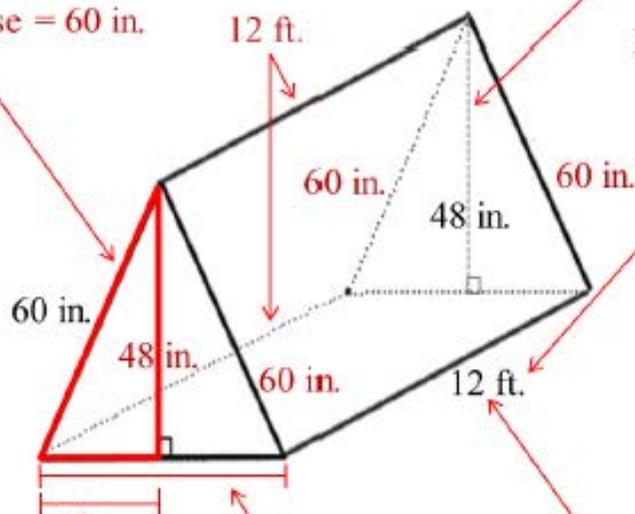**There is a Right Triangle here and Pythagorean Theorem can be applied.**
Leg 1 = 48 in.
Leg 2 = unknown
Hypotenuse = 60 in.

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

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

12 ft.

60 in.
48 in.

60 in.

60 in.
48 in.
60 in.

12 ft.

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.

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