

MA 102 Beginning Algebra

Thomas Spring, SM. HH 22.
Math Department, Chaminade University
Honolulu, Hawaii

Spring Semester, 1998; Day Session

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Course Expectations

Calculator: You may use a calculator at any time unless I tell you differently.

Assignments: An assignment will be distributed the first class day of each week. It will be due the last day of that week.

Quizzes: There will be a quiz on the Wednesday of each week unless there is a test that day. It will be concerned with the work taken in class since the preceding quiz. In addition, there will be announced quizzes based on a reading assignment; these will be open book quizzes.

Tests: Three tests will be given on Wednesdays during the semester. They will replace that day's quiz. Each test will be concerned with the material covered in class since the last test. Each test will take up the entire class period. See the Course Calendar for the specific dates.

Service Learning Option: See the attached sheet.

Final Exam: The time for this course's final exam is 10:30 on Tuesday, 5 May.

Vocabulary: One aim of this course is to help you achieve proficiency in the vocabulary of mathematics. Vocabulary will be part of assignments, quizzes and tests. See the attached vocabulary list.

Recommended Problems: Attached herewith is a list of Recommended Problems. These problems are not to be handed in and they will not be graded. They are intended to reinforce the material covered in class. Each class will begin with time to go over these problems if someone asks.

Grade: Your grade is determined by averaging your grades on the Service Learning Option and the Final Exam with the three averages derived respectively from your grades on the quizzes, assignments and tests.
My grading scale is: A = 100 to 93; B = 92 to 85; C = 84 to 77; D = 76 to 70; F = less than 70. My grading scale is currently tougher than most and that is because I want to challenge you on the basics of algebra.

Assistance: I am able and eager to assist you. The various ways of contacting me are given in the masthead of this sheet. My office hours are posted and I can easily make appointments.

You can also receive assistance in the **Math Lab** in HH 20. It will be open around 1 February. No appointment is needed.

The **Learning Center** will provide you with a tutor. You must make an appointment. The LC is on the bottom floor of Eiben Hall.

Walter Paddington: His mission in life is to witness to such attitudes as: there is more to life than mathematics, success is more than high grades, each of us is unconditionally loved. Walter is available for consultation any time. Consultation generally takes place through hugging and holding.

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Course Syllabus

Text: Beginning Algebra by Gustafson and Frisk.
Brooks/Cole Publishing Company 1995 4th Ed.

- Chapter 1: Sections 1.1 to 1.7.
Chapter 2: Sections 2.1 to 2.7.
Chapter 3: Sections 3.1 to 3.8.
Chapter 4: Sections 4.1 to 4.8.
Chapter 5: Sections 5.1 to 5.5, 5.7 to 5.9.
Chapter 6: Sections 6.1 to 6.3, 6.5 to 6.7.
Chapter 7: Sections 7.1 to 7.4.
Chapter 8: Sections 8.1 to 8.5, 8.7.
Chapter 9: Sections 9.1 to 9.6.

Competencies To Be Achieved

By the end of MA 102, the student should be able to

1. Solve any linear equation in one variable.
2. Solve any quadratic equation with real roots.
3. Perform the four operations on any real numbers, any algebraic expressions and radicals.
4. Graph any linear equation and any linear inequality.
5. Solve several types of word problems that result in linear or quadratic equations.

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The Service Learning Option

Tutor or Write

Write:

8 to 10 pages, double spaced, typed; on one topic.

- Topics:
1. The four operations on various kinds of quantities: integers, fractions, polynomials, rational expressions, radicals.
 2. Solving Equations: linear (with parentheses, with fractions); quadratic; with rational expressions, with radicals.
 3. Solving word problems.
 4. Your own suggestion.

- Stages:
1. Investigate above topics. Talk with me during Weeks 1 to 7.
 2. Choose a topic by end of Week 8.
 3. Check main ideas, vocabulary and terminology with me by end of Week 9.
 4. Outline by end of Week 10.
 5. Draft by end of Week 12.
 6. Paper due by end of Week 14.

- Criteria:
1. Use appropriate selections from vocabulary studied in class.
 2. Meet deadlines above.
 3. Clear and accurate communication.
 4. Original examples, not copied.
 5. Precise use of vocabulary.
 6. Good English. Accurate spelling.

Attitude: Write as if you were teaching someone who is as ignorant as you were on 12 January 1998.

Tutor:

One hour a week during weeks 4 to 13 inclusive.
Reflection via a weekly journal and a two page paper.

Sites: Choose from Aliiolani School or Kuhio School. Aliiolani is four blocks from Chaminade and generally tutors during lunch time. Kuhio is about a mile away generally tutors after school.

Journal: To be done for each tutoring day.
Use the prescribed form.
Hand in by Day One of the week following the tutoring.

Paper: Two pages, double spaced, typed.
Summarizes the experience. Same points as the journal.
Due by end of Week 14.

Absences: The tutoring is to be regarded as a professional obligation. If you must miss a tutoring appointment, notify the school in advance. No appointments can be made during this time: appointments with doctors or for interviews or such. Absence is justified only for the most serious reasons. Any absence will affect this part of your grade adversely; absences without prior notification having an even greater adverse effect.

Attitude: You are performing a service for the students and the school. Both come to depend on you, especially the students. Let yourself be a gift to them. Be open to getting something back from this experience.

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Vocabulary for Chapter One

absolute value (1.1)	integer (1.1)
algebraic expression (1.6)	natural number (1.1)
Algebraic term (1.6)	numerator (1.2)
coefficient (1.6)	odd number (1.1)
commutative properties (1.7)	operations, the four (1.2)
denominator (1.2)	prime number (1.1)
difference (1.6)	product (1.6)
distributive properties (1.7)	quotient (1.6)
even number (1.1)	rational number (1.1)
exponent (1.3)	reciprocal (1.2)
factors (1.2, 1.6)	sum (1.6)
grouping symbols (1.3)	whole number (1.1)

Vocabulary for Chapter Two

equation (2.1)	solution of an equation (2.1)
inequality (2.7)	unknown (2.1)
like terms (2.3)	unlike terms (2.3)
literal equation (2.4)	variable (2.1)
root of an equation (2.1)	

Vocabulary for Chapter Three

algebraic terms (3.4)	FOIL (3.6)
base (3.1)	monomial (3.4)
binomial (3.4)	polynomial (3.4)
conjugate binomials (3.6)	power (3.1)
degree of a binomial (3.4)	scientific notation (3.3)
degree of a polynomial (3.4)	standard notation (3.3)
exponent (3.1)	trinomial (3.4)

Vocabulary for Chapter Four

difference two cubes (4.6)	prime factor (4.1)
difference of two squares (4.3)	prime factored form (4.1)
factor by grouping (4.2)	prime polynomial (4.3)
greatest common factor (4.1)	quadratic equation (4.1)
linear equation (4.1)	sum of two cubes (4.6)
multiple (4.1)	zero-factor property (4.1)

Vocabulary for Chapter Five

arithmetic fraction (5.1)	means of a proportion (5.5)
common denominator (5.4)	proportion (5.9)
extraneous solutions (5.7)	ratio (5.9)
extremes of a proportion (5.7)	rational expression (5.1)
fraction (5.1)	rational number (5.1)
least common denominator (5.5)	

Vocabulary for Chapter Six

Cartesian coordinate system (6.1)	parabola (6.4)
combined variation (6.7)	parallel lines (6.3)
constant of variation (6.7)	perpendicular lines (6.3)
coordinates of a point (6.1)	point-slope form of linear equation (6.3)
dependent variable (6.6)	quadrant (6.1)
direct variation (6.7)	range of a relation (6.6)
domain of a relation (6.6)	relation (6.6)
function (6.6)	slope (6.2)
general form of linear equation (6.1)	slope-intercept form of a linear equation (6.2)
graph of a line (6.1)	subscript notation (6.2)
independent variable (6.6)	x-axis (6.1)
intercept (6.1)	x-coordinate (6.1)
inverse variation (6.7)	x-intercept (6.1)
joint variation (6.7)	y-axis (6.1)
linear inequality (6.5)	y-coordinate (6.1)
ordered pair (6.1)	y-intercept (6.1)
origin (6.1)	

Vocabulary for Chapter Seven

addition method (7.3)	simultaneous solution (7.1)
consistent system of equations (7.1)	solution of a system of equations (7.1)
dependent equations (7.1)	substitution method (7.2)
inconsistent system of equations (7.1)	system of equations (7.1)
independent equations (7.1)	

Vocabulary for Chapter Eight

conjugate (8.4)	nth root of a number (8.1)
cube root (8.1)	principal square root (8.1)
distance formula (8.7)	Pythagorean theorem (8.7)
division property of radicals (8.2)	radical sign (8.1)
extraneous solution (8.5)	radicand (8.1)
hypotenuse (8.7)	rational exponent (8.6)
index (8.1)	rationalizing the denominator (8.4)
irrational number (8.1)	real number (8.1)
like radicals (8.3)	simplified form of a radical (8.2)
multiplication property of radicals (8.2)	square root (8.1)

Vocabulary for Chapter Nine

completing the square (9.2)	quadratic form (9.1)
factoring method (9.1)	quadratic formula (9.3)
general quadratic equation (9.3)	

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Recommended Problems

Chapter 1: 75/5, 7, 13, 15, 17, 25, 41, 53, 55, 63, 79.
Section 2.1 89/25, 39, 47, 81, 85, 91, 105.
Section 2.2 97/5, 27, 53, 63.
Section 2.3 107/9, 13, 33, 39, 49, 63, 85, 89, 91.
Section 2.4 115/1, 5, 9.
Section 2.5 122/1, 3, 9, 11.
Section 2.6 130/1, 3, 5.
Section 2.7 139/1, 11, 13, 55.
Section 3.1 157/13, 17, 19, 21, 25, 27, 41, 49, 53, 63, 81, 89, 97.
Section 3.2 162/1, 7, 9, 15, 19, 31, 35, 47.
Section 3.3 168/3, 7, 15, 19, 33.
Section 3.4 173/9, 17, 43.
Section 3.5 178/23, 25, 31, 33, 49.
Section 3.6 187/5, 15, 25, 31, 35, 51, 57, 69, 77, 97, 101, 105.
Section 3.7 193/13, 31, 41, 53, 63.
Section 3.8 198/1, 7, 13, 31.
Section 4.1 215/15, 19, 23, 43, 47, 63, 67, 71, 75.
Section 4.2 219/1, 3, 7, 21, 23.
Section 4.3 225/3, 7, 11, 27, 39, 57, 83.
Section 4.4 233/3, 5, 11, 15, 17, 35, 41, 61, 69, 85.
Section 4.5 243/3, 9, 15, 29, 37, 53, 65, 85, 89.
Section 4.6 248/1, 5, 9, 13, 41.
Section 4.7 251/1, 5, 7, 9, 11, 13, 17, 31, 45.
Section 4.8 257/1, 3, 11, 13, 17.
Section 5.1 273/13, 33, 35, 45, 51, 69.
Section 5.2 278/23, 43, 49, 53.
Section 5.3 283/25, 37, 41.
Section 5.4 288/15, 27, 55, 65, 71.
Section 5.5 296/39, 47, 55, 57, 69, 73.
Section 5.7 309/1, 13, 21, 31, 39.
Section 5.8 314/1, 3, 5, 7, 9.
Section 5.9 321/35, 37, 51, 57, 63, 67, 75.
Section 6.1 345/41, 45, 47, 55, 61, 67.
Section 6.2 357/3, 9, 19, 27, 29, 39, 41.
Section 6.3 367/1, 7, 19, 25, 27, 29, 33, 37, 51, 53, 57.
Section 6.5 382/1, 3, 11, 15, 21.
Section 6.6 391/1, 5, 7, 13, 15, 23, 31, 33.
Section 6.7 398/1, 7, 11, 17, 29.
Section 7.1 421/13, 17, 19. Section 7.2 428/1, 5, 7, 13, 19.
Section 7.3 434/7, 13, 19, 25. Section 7.4 443/1, 5, 9, 17.
Section 8.1 474/5, 9, 59, 61, 69, 73, 75, 83, 89, 105.
Section 8.2 480/1, 9, 37, 45, 49, 53, 65, 77, 81.
Section 8.3 485/1, 17, 37, 45, 63, 71, 79.
Section 8.4 493/3, 5, 7, 11, 13, 23, 33, 37, 51, 57, 63, 69, 75, 93, 107, 117.
Section 8.5 500/1, 5, 11, 17, 29, 35, 41.
Section 8.7 513/1, 9, 11, 13, 25, 31.
Section 9.1 529/1, 5, 9, 13, 17, 41.
Section 9.2 535/13, 23, 27, 39. Section 9.3 541/13, 25, 29, 37.

MA102 Course Calendar

<u>Date</u>	<u>Quizzes</u>	<u>Assignments</u>	<u>Tests</u>	<u>SL Option W</u>	<u>SL Option T</u>	<u>Final Exam</u>
Ja12				Check	Choose	
Ja14	#1			Topics	Aliiolani	
Ja16		#1		with	or	
Ja21	#2			Instructor;	Kuhio	
Ja23		#2		till	by	
Ja26				end	26 Jan.	
Ja28	#3			of		
Ja30		#3		Week		
Fe02				Seven	Start	
Fe04	#4			which	tutoring	
Fe06		#4		is	this week.	
Fe09				27 Feb.		
Fe11			#1		Journal due	
Fe13		#5				
Fe18	#5				Journal due.	
Fe20		#6				
Fe23					Journal due.	
Fe25	#6					
Fe27		#7				
Mr02					Journal due.	
Mr04	#7					
Mr06		#8		Choose topic.		
Mr09					Journal due.	
Mr11	#8					
Mr13		#9		Check terms.		
Mr16					Journal due.	
Mr18			#2			
Mr20		#10		Outline due.		
Mr30					Journal due.	
Ap01	#9					
Ap03		#11				
Ap06					Journal due.	
Ap08	#10	#12		Draft due.		
Ap13					Journal due.	
Ap15	#11					
Ap17		#13				
Ap20					Last Journal.	
Ap22	#12					
Ap24		#14		Paper due.	Paper due.	
Ap27						
Ap29			#3			
My01		#15				
My05						10:30 a.m.