



**Mathematics 073 S01
Advanced Mathematics 2
Summer 2014**

Instructor: Gemma Cuizon
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Schedule:

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:30 am-9:00 am	Office Hours E250	Office Hours E250	Office Hours E250	Office Hours E250	
9:00 am-10:50 am	Math 135_001 E346	Math 135_001 E346	Math 135_001 E346	Math 135_001 E346	
5:00 pm - 5:30 pm	Office Hours E250		Office Hours E250		
5:30 pm - 7:50 pm	Math 072_S01/ 073_S01 E348	Math 072_S02/ 073_S02 E346	Math 072_S01/ 073_S01 E348	Math 072_S02/ 073_S02 E348	

Important Dates:

May 5	First day of Math 072/073 SP class
May 19	Victoria Day – College is closed.
May 20	Fee deadline
July 1	Canada Day – College is closed.
July 7	Last day to withdraw from the course or change to audit
August 4	British Columbia Day – College is closed.
August 14	Last day of writing tests at the Math Help Centre

Prerequisites: The minimum recommended prerequisite is a **recent C+** in Math 072, or a **recent C** in Principles of Math 11. If you have been away from math for more than two years, then hopefully your prerequisite grade is higher.

Exit Grade: You need a minimum of **C+** in 073 to continue into Math 107 or a **B** in Math 073 to continue into Math 115. Please come and see me before you register for a Math 12 or precalculus course.

Required Textbook: *Intermediate Algebra, 11th Edition, Marvin Bittinger*
Trigonometry Booklet (packaged with the new copies of the textbook)

Other Supplements: DVD's (on reserve on the main laibrary) and videotapes (in the Math Help Centre E342)

Workload

The course completion time will vary for each student, depending on a number of factors to be discussed with the instructor when the **individual learning plan** is developed. Factors include the students' beginning level of math skills, motivation, learning rate, and how much time they can actually study and attend class. It takes 2 – 4 hours to read through one section and do both the margin exercises and enough exercises in the exercise set to feel comfortable with the material. There are 36 sections in this course; this means that you have between **72 – 144 hours of work** ahead of you not including study time for tests and the final exam! If you work 5 days a week on this course, then you need to put in 2 – 4 hours a day to finish the course in one term. There is lots of help available; you can ask me questions during class or during office hours, you can get help from the math tutors in the help centres.

Course Content:

MATH 073 is the second half of an intermediate algebra and triangle trigonometry course. Math 072 & 073 together articulate as Principles of Math 11. However, those of you who have taken Principles of Math 11 will notice that 073 has quite a different flavour; we emphasize both numeracy and algebra and trigonometric skills using only basic scientific calculator when necessary. Topics include operations on polynomials, factoring, rational expressions and equations, rational exponents, radicals and radical equations, quadratic equations and functions, right triangle trigonometry and the sine and cosine laws. Applications are seen throughout the course

Unit 1 is review for those who have taken Math 072 recently. If you have completed Math 072 within the last month, you do not need to write the Unit 1 test; you may use your Math 072 mark for Ch 4 instead.

Unit 1: Ch 4	Polynomials and Polynomial Functions	4.1 – 4.8
Unit 2: Ch 5	Rational Expressions, Equations and Functions	5.1 – 5.8
Unit 3: Ch 6	Radical Expression, Equations and Functions	6.1 – 6.8
Unit 4: Ch 7	Quadratic Equations and Modelling	7.1 – 7.7a
Unit 5:	Trigonometry (separate booklet)	5.1, 5.2, 5.3, 7.1, 7.2

Homework for Unit 1 (Ch 4)

Unit 1	Section	Margin Exercises	A Bit More Practice	Lots More Practice
4.1	Introduction to Polynomials	all	25, 29, 75, 79	1 – 29, 35 – 79
4.2	Multiplication of Polynomials	all	41, 43, 75, 79, 81, 89, 91, 103	1 – 91, 103
4.3	Introduction to Factoring	all	23, 27, 37 – 41, 49, 57 – 64 all, 65, 67, 75, 77	11 – 49, 57 – 64 all, 65, 67, 75, 77
4.4	Factoring Trinomials of the Form: $x^2 + bx + c$	all	13, 17, 23, 25, 39	1 – 39
4.5	Factoring Trinomials of the Form: $ax^2 + bx + c, a \neq 1$	all	Start with the FOIL method (trial and error); switch to the ac-method as needed 33 – 51, 69 – 81	1 – 51, 69 – 81
4.6	Special Factoring	all	1 – 10, 27, 29, 41, 51, 59 – 67, 89, 91, 99, 103, 105, 125, 131	1 – 105, 125, 131
4.7	Factoring Strategy	all	21 – 27, 33, 37, 41 – 53, 59 – 69	1 – 53, 59 – 69
4.8	Applications	all	9, 13, 15, 25, 31, 33, 35, 41, 47, 49, 55, 57, 63 – 83	1 – 57, 63 – 83

Properties and Formulas	1. classification of polynomials by the number of terms and degree 2. squaring a binomial (in your head) 3. factoring formulas (diff. of squares, sum/diff of cubes) 4. Principle of Zero Products
Function Notation	Sections 2.2, 4.1, 4.2
Word Problems in Section 4.8	Know the Pythagorean Theorem and the formulas for the area of a square, rectangle and triangle (inside back cover of textbook)
Chapter 4 Test : All	No peeking at the answers until you have finished the test! Grade yourself; hard questions are worth 2 marks each and the other questions are worth 1 mark each. If you are satisfied with the results, then great! If you want more practice, choose from the suggestions below.
Review Exercises	Find questions in these exercises that are similar to the ones that you had trouble with in the chapter test.

Homework for Unit 2 (Ch 5)

Unit 2	Section	Margin Exercises	A Bit More Practice	Lots More Practice
5.1	Rational Expressions	all	7, 17, 27, 39, 49, 55, 57, 75 – 79	1 – 57, 75 – 79
5.2	Addition and Subtraction	all	5, 11, 19, 21, 25, 29, 33 – 41, 47, 51, 53, 61, 67, 69, 71	1 – 73
5.3	Polynomial Division	all	5, 13, 15, 17, 19, 29, 31, 33	1 – 35, 47 – 50
5.4	Complex Fractions	all	19, 23, 25, 27, 29, 31	1 – 31, 45 – 53
5.5	Solving Rational Equations	all	15, 19, 31, 33, 41, 49, 55	1 – 45, 48 – 55 all
5.6	Applications and Proportions	all	1 – 29	1 – 29
5.7	Formulas	all	7, 9, 17, 19, 21, 25	1 – 25
5.8	Variation	all	13, 23, 35, 41, 43	1 – 59
Concept Reinforcement				
Properties and Formulas		1. Work Principle: Please ask help if you don't understand why this works. 2. Direct, Inverse and joint Variation		
Chapter 5 Test : 1 – 33		No peeking at the answers until you have finished the test! Grade yourself; hard questions are worth 2 marks each and the other questions are worth 1 mark each. If you are satisfied with the results, then great! If you want more practice, choose from the suggestions below.		
Review Exercises		Find questions in these exercises that are similar to the ones that you had trouble with in the chapter test.		

Homework for Unit 3 (Ch 6)

Unit 3	Section	Margin Exercises	A Bit More Practice	Lots More Practice
6.1	Radical Expressions & Functions	all	7, 11, 33, 37, 43, 45, 49, 53, 55, 63 – 69, 73, 79, 85, 89	1 – 37, 43 – 79, 83 – 92
6.2	Rational Exponents	all	23 – 33, 39, 43, 49, 53, 55, 65, 67, 71, 75, 77, 81, 83	1 – 83, 87 – 90
6.3	Simplifying Radicals	all	13, 19, 27, 29,	1 – 65, 71 – 97a

			35 – 45, 57, 61, 63, 75, 79, 85, 87, 97a	
6.4	Operations with Radicals I	all	19, 29, 35, 47, 67 – 75, 79 – 86, 93, 97	1 – 75, 79 – 86, 93, 97
6.5	Operations with Radicals II	all	7, 11, 15, 19, 25, 31, 35 – 37, 41	1 – 31, 35 – 37, 41
6.6	Solving Radical Equations	all	11, 17, 19, 23, 35, 41, 43, 57, 61 – 72, 77, 85	1 – 43, 55, 57, 61 – 72, 77, 85
6.7	Applications	all	21 – 29, 33 – 40, 43	1 – 15, 21 – 29, 33 – 40, 43
6.8	Complex Numbers	all	17, 31, 47, 51, 55, 57, 63, 77, 81, 91, 93, 97, 101 – 108	1 – 97, 101 – 108
Properties and Formulas		Definition of rational exponents: $x^{\frac{m}{n}} = (\sqrt[n]{x})^m$ or $x^{\frac{m}{n}} = \sqrt[n]{x^m}$ Definition of principle root (when to use absolute value with radicals) Definition of i and i^2 : $\sqrt{-1} = i$ and $i^2 = -1$		
Chapter 6 Test		1 – 46		
Review Exercises		All		

Homework for Unit 4 (Ch 7)

Unit 4	Section	Margin Exercises	A Bit More Practice	Lots More Practice
7.1	The Basics of Solving Quadratic Equations	All	3, 17, 33, 41, 49, 53, 68, 69	1 – 59, 68 - 73
7.2	The Quadratic Formula	All	11, 17, 21, 29, 33, 35, 43, 61, 63	1 – 43, 47 – 54, 61, 63
7.3	Applications	All	1 – 29, 37, 39, 43, 47	1 – 29, 31 – 47
7.4	More on Quadratic Equations	All	7, 23, 25, 27, 35, 37, 45, 47, 55, 63 – 66, 73	1 – 57, 63 – 66, 73
7.5	Graphing I	All	21, 23, 32 - 34	1 – 25, 29 – 34
7.6	Graphing II	All	7 – 11, 13, 19, 23, 31, 35	1 – 21, 23 – 28, 31, 35
7.7	Mathematical Modelling (only a)	Only #1	1 – 17	1 – 17, 37 – 44
Properties and Formulas		Definition of rational exponents: $x^{\frac{m}{n}} = (\sqrt[n]{x})^m$ or $x^{\frac{m}{n}} = \sqrt[n]{x^m}$ Definition of principle root (when to use absolute value with radicals) Definition of i and i^2 : $\sqrt{-1} = i$ and $i^2 = -1$		
Chapter 7 Test		1 – 19		
Review Exercises		All		

Homework for Unit 5 (Trigonometry)

- The following homework is from the Trigonometry booklet (taken from Algebra and Trigonometry, Second edition by J. A. Penna and M. Bittinger).
If you do not have a copy, please ask. We have a couple of spare copies that we can lend.

Unit 5	Section	Margin Exercises	A Bit More Practice	Lots More Practice
5.1	Trig Functions of Acute Angles		NC before a group of questions means that you should not use a calculator for these questions NC 1 – 29, 31 – 81 NC 83 – 97	Same as previous column
5.2	Applications of Right Triangles		7 – 21, 25 – 31	1 – 21, 25 – 31
5.3	Trig Functions of Any Angle		1 – 23, NC 25 – 77, 83 – 105	Same as previous column
7.1	The Law of Sines		1, 3, 5, 9, 13, 15, 25, 27, 29	1 – 15, 25, 27, 29
7.2	The Law of Cosines		1, 3, 7, 9, 13, 17, 19, 21, 25, 29, 31	1 – 23, 25, 27, 29, 31
Properties and Formulas		5.1	right triangle definitions of the 6 trig. Functions definitions of the reciprocal functions labelling of special triangles degrees, minutes and seconds	
		5.2	angle of elevation and depression bearings (first type)	
		5.3	angle in standard position reference triangle co-ordinate definitions of the trigonometric functions (p29) reference angle bearings of the second type (p38)	
		7.1	sine law (including the ambiguous case)	
		7.2	cosine law	

Final Exam Checklist

Practice Final	Pick up a copy of the Practice Final and Solutions from me. Do several questions before checking the answers to better simulate a testing experience.
Vocabulary and Rules	domain of a function classification of polynomials square of a binomial diff. of squares, sum & diff. of cubes factoring strategy principle of zero products Pythagorean Theorem compare simplifying an expression with solving an equation direct, inverse and joint variation principal square root of a^2 : $\sqrt{a^2} = a $ simplifying $\sqrt[k]{a^k}$ definition of $a^{\frac{m}{n}}$

	<p>laws of exponents rationalizing the denominator $\sqrt{-1} = i$ and $i^2 = -1$; complex conjugates principle of square roots: $x^2 = d \Rightarrow x = \pm\sqrt{d}$ solving quadratics by completing the square quadratic formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$</p> <p>discriminant: $b^2 - 4ac$ parabola: vertex, line of symmetry writing a quadratic function in graphing form by completing the square (note the similarities and differences with solving quadratics by completing the square)</p> <p>back cover perimeter and area: square, rectangle, triangle, circle</p> <p>Trig5.1 right triangle definitions of the six trig functions; definitions of the reciprocal functions; labeling of special triangles; degrees, minutes and seconds</p> <p>Trig5.2 angle of elevation and depression, bearings (first type)</p> <p>Trig5.3 angle in standard position, reference triangle, co-ordinate definitions of trig functions (p29), reference angle, bearing of the second type (p38)</p> <p>Trig7.1 sine law (including the ambiguous case)</p> <p>Trig7.2 cosine law</p>
Word Problems	Sections 4.8, 5.6, 5.8, 6.7, 7.3, 7.7 Trig booklet: 5.2, 5.3, 7.1, 7.2
Rearranging Formulas	Section 5.7, 7.3
Chapter Tests & Review Exercises	If you are having trouble with a particular chapter, redo that chapter test and/or some of the review exercises for that chapter.

Access Math Lab: **Ewing 342 and Ewing 224:** This drop-in centre is freely available for your use to work on math homework and to seek help from the tutor on staff (see hours posted on door).

Calculator Policy: As per Math Department policy, the only calculator permitted for use on quizzes and the final exam is the **Sharp EL-531X** scientific calculator. No other make/model of calculator is permitted, nor are other electronic devices such as cell phones, PDAs, laptop computers, electronic translators, etc.

Course Objectives: The four very ambitious objectives of the course are:

- To learn the basic algebra skills necessary to be successful both in your chosen field of study and in future math courses. This involves learning the vocabulary, notation, rules, and techniques of intermediate algebra, as well as solving applied problems.
- To do basic arithmetic without a calculator.
- To learn to write mathematics correctly.
- To be able to explain the concepts involved in problem solving.

Assessment (Grades)

Your mark is based on 5 tests and an exam. If you get less than 65% on a test you must rewrite it. If you get more than 65% you have the option of rewriting it once. All test marks will count towards your final mark. To re-register for the course for one extra term, you must have at least 75% of the work done or at least have 75% attendance.

Suggested Pacing Schedules

- Please note that you can take up to 2 terms to complete a course if you need it.
- Some chapters may require more time, others less. You can write tests anytime the math lab is open, not just on class days.

SUGGESTED SCHEDULE TO COMPLETE IN ONE TERM

Wk		Monday	Tuesday	Wednesday	Thursday	Friday
1	May	5 Classes Start 4.1	6 4.1	7 4.2	8 4.2	9 4.3
2		12 4.4	13 4.5	14 4.5	15 4.6	16 4.6
3		19 <i>Victoria Day</i>	20 4.7	21 4.8	22 4.8	23 Review Ch 4
4		26 Unit 1 Test	27 5.1	28 5.2	29 5.3	30 5.3
5	June	2 5.4	3 5.4	4 5.5	5 5.6	6 5.6
6		9 5.7	10 5.8	11 Review Ch 5	12 Review Ch 5	13 6.1
7		16 Unit 2 Test	17 6.1, 6.2	18 6.2	19 6.3	20 6.4
8		23 6.5	24 6.5	25 6.6	26 6.7	27 6.8
9	July	30 Review Ch. 6	1 <i>Canada Day</i>	2 Review Ch 6	3 Unit 3 Test	4 7.1
10		7 7.2	8 7.3	9 7.3	10 7.4	11 7.5
11		14 7.5	15 7.6	16 7.6	17 7.7	18 7.7
12		21 Review Ch 7	22 Review Ch 7	23 Unit 4 Test	24 Trig. 5.1	25 Trig. 5.2
13		28 Trig. 5.2	29 Trig. 5.3	30 Trig. 5.3	31 Trig. 7.1	1 Trig. 7.1
14	Aug	4 <i>British Columbia Day</i>	5 Trig. 7.2	6 Trig. Review	7 Unit 5 Test	8 Review for Final Exam
15		Aug 11 – 15 Catch-up week; last chance to write a test or final exam is Thursday Aug. 14.				

My Math 073 Pacing Schedule Spring/Summer 2014

Wk		Monday	Tuesday	Wednesday	Thursday	Friday
1	May	5	6	7	8	9
2		12	13	14	15	16
3		19 <i>Victoria Day</i>	20	21	22	23
4		26	27	28	29	30
5	June	2	3	4	5	6
6		9	10	11	12	13
7		16	17	18	19	20
8		23	24	25	26	27
9	July	30	1 <i>Canada Day</i>	2	3	4
10		7	8	9	10	11
11		14	15	16	17	18
12		21	22	23	24	25
13		28	29	30	31	1
14	Aug	4 <i>British Columbia Day</i>	5	6	7	8
15		Aug 11 – 15 Catch-up week; last chance to write a test or final exam is Thursday Aug. 14.				

Lansdowne Self-paced Courses Spring/Summer 2014

Instructor Information

Instructor: Gemma Cuizon

Lansdowne Office: E250

Phone: 370-3321

Office Hours: 4:45pm-5:30pm (E250) Mon. & Wed.

E-mail: cuizon@camosun.bc.ca

Tips for Success

1. Come to class every day. If you don't attend class, it's easy to fall behind and much tougher to catch up as you have to relearn the material.
2. Do the suggested exercises from your course outline. Work through the problems thoughtfully, not just to get them done. Think about what the instruction means, what a similar question might look like on the test and what are some of the pitfalls that you need to avoid.
3. Try to find time to do at least a bit of math at least 5 days a week. On your timetable, schedule time each day for your math homework; it is really important to establish a routine. You can't put your math course on the back burner and hope to cram it in at the end.
4. Do the questions thoughtfully rather than just trying to get them over with! Think about the principles and strategies involved.
5. If you don't understand something seek help right away from your instructor or from the tutors in the Math lab in E224 and E342.
Math lab hours: Mon – Friday 10:30pm – 2:30pm (E224)
Mon – Thursday 5:00pm – 8:00pm (E342)
6. Keep working, stay positive and do the best you can given all the other demands in your life.

Class Protocol

1. Sign in so your instructor knows that you're attending.
2. Bring your textbook, calculator and work materials to every class.
3. Work quietly. I encourage you to help each other but please keep the noise level down and keep cell phones on vibrate mode. If you would like to work with a partner or in a group, please feel free to use the math lab. If you would like to take a break from math (and this is totally understandable) please chat outside the classroom.
4. If you bring snacks to class please tidy up afterwards. Let me know if you have any relevant allergies. Thanks.
5. If you need help and I'm with another student, please put your name on the board so I know you're waiting. If others are waiting, I may have to limit the time I spend with you e.g. 2 questions at a time.
6. When doing the exercises, label each question clearly, write out the question and show your work. This makes it easy to review for the test and to get help if you don't understand.
7. If you have trouble with an exercise, highlight the question and make a note in your margin about what you don't understand. When you ask for help in class, bring the question and your work for the instructor to see. Be organized!