

*5 credits, 16 weeks, 6 hours*

Topics covered include properties of angles and triangles; oblique triangle trigonometry; systems of linear equations; operations (addition, subtraction, multiplication, division) on rational expressions; solve rational equations; logarithms; numerical and logical reasoning. Extensions to the core materials include a Business/Arts Prep module focussing on linear inequalities; probability; permutations, combinations and the fundamental counting principle and a Trades prep module which explores measurement involving triangles, quadrilaterals and regular polygons, including transformations on 2D shapes or 3D objects.

*Alberta Education Equivalency: Math 30-2*

*Prerequisite: Math 20-2 or Math 20-1 or permission of the Program Chair.*

#### Instructor Information

Instructor	Gillian Whalen
Office Phone	780-559-2434
Cell Phone	587-646-4358
E-mail	Gillian.Whalen@keyano.ca

#### Class Time

Day	Time
Tuesday	9:00 AM – 10:50 AM
Thursday	9:00 AM – 9:50 AM 1:00 – 1:50 PM
Friday	9:00 AM – 10:50 AM

#### Office Hours

Monday	10:00 AM to 10:50AM
Tuesday	11:0 AM to 11:50 AM 2:00 PM to 2:50 PM
Wednesday	9:00 AM to 9:50 AM
Friday	11:00 AM to 11:50 AM

**RECOMMENDED RESOURCES**

Textbook: Principles of Mathematics 12: Alberta (Nelson)

(Required text & resources are available in the Keyano College Bookstore)

Materials: **T183plus calculator**, geometry set, graph paper, binder, ruled paper, pencils, pen, and eraser

**COURSE GOAL:**

The main goals of mathematics education are to prepare students to:

- solve problems
- communicate and reason mathematically
- make connections between mathematics and its applications
- become mathematically literate
- appreciate and value mathematics
- make informed decisions as contributors to society

**GENERAL MATH PROGRAM OUTCOMES:**

Students will

- ✓ Develop spatial sense and proportional reasoning
- ✓ Develop algebraic reasoning and number sense
- ✓ Develop algebraic and graphical reasoning through the study of relations

**COURSE OUTCOMES:**

Upon successful completion of Math 30-2, students will be able to:

- ✓ Solve problems that involve the application of set theory.
- ✓ Solve problems that involve the Fundamental Counting Principle.
- ✓ Solve Problems that involve permutations.
- ✓ Solve problems that involve combinations.
- ✓ Interpret and assess the validity of odds and probability statements.
- ✓ Solve problems that involve the probability of mutually exclusive and non-mutually exclusive events.
- ✓ Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials and binomials).
- ✓ Perform operations on rational expressions (limited to numerators and denominators that are monomials and binomials).
- ✓ Solve problems that involve rational equations (limited to numerators and denominators that are monomials and binomials).
- ✓ Represent data, using polynomial functions (of degree  $\leq 3$ ), to solve problems.
- ✓ Solve problems that involve exponential equations.
- ✓ Represent data, using exponential and logarithmic functions, to solve problems.
- ✓ Demonstrate an understanding of logarithms and the laws of logarithms
- ✓ Solve problems that involve exponential equations.
- ✓ Represent data, using exponential and logarithmic functions, to solve problems.

**PROPOSED CLASS SCHEDULE:**

12 hours	Chapter 1: Set Theory
15 hours	Chapter 2: Counting Methods
15 hours	Chapter 4: Rational Expressions and Equations
15 hours	Chapter 6: Exponential Functions
15 hours	Chapter 7: Logarithmic Functions
8 hours	Projects
10 hours	<b>Class assessments and final exam</b>

**PROPOSED TOPICS:****1. Chapter 1: Set Theory**

- 1.1. Types of Sets and Set notation
- 1.2. Exploring Relationships between Sets
- 1.3. Intersection and Union of Two Sets

**2. Chapter 2: Counting Methods**

- 2.1. Counting Principles
- 2.2. Introducing Permutations and Factorial Notation
- 2.3. Permutations When All Objects Are Distinguishable
- 2.4. Permutations When Objects are Identical
- 2.5. Exploring Combinations
- 2.6. Combinations
- 2.7. Solving Counting Problems

**3. Chapter 4: Rational Expressions and Equations**

- 3.1. Equivalent Rational Expressions
- 3.2. Simplifying Rational Expressions
- 3.3. Multiplying and Dividing Rational Expressions
- 3.4. Adding and Subtracting Rational Expressions
- 3.5. Solving Rational equations

**4. Chapter 6: Exponential Functions**

- 4.1. Exploring the Characteristics of Exponential Functions
- 4.2. Relating the Characteristics of an Exponential Function to Its Equation
- 4.3. Solving Exponential Equations
- 4.4. Modeling Data Using Exponential Functions
- 4.5. Financial Applications Involving Exponential Functions

**5. Chapter 7: Logarithmic Functions**

- 5.1. Characteristics of Logarithmic Functions
- 5.2. Evaluating Logarithmic Expressions
- 5.3. Laws of Logarithms
- 5.4. Solving Exponential Equations Using Logarithms
- 5.5. Modeling Data Using Logarithmic Functions

**EVALUATION:**

Type	Weighting
Assignments	20%
Projects	10%
Tests	30%
Final Exam	40%

**Notes on Class Expectation and Evaluation:**

1. Please turn off (or put on silent) Cell phone and MP3 players during class.
2. Please notify your instructor of absences via email or voice mail (preferably in advance of the absence); if your absence will be for more than one class day, please communicate the extended absence to your instructor. It is the student's responsibility to seek out missed assignments/tasks that were assigned during his/her absence in a timely manner. Your instructor encourages you to make use of assigned office hours for this purpose.
3. All assigned work must be scanned to the instructor, on or before the due date.
4. Missed quizzes and tests cannot usually be re-written. Only under exceptional circumstances, and at the instructor's discretion. Any missed tests will be scheduled on the student's own time. Students must contact the instructor within 24 hours of missing a test, and provide documentation (e.g. a doctor's note) in order to write without penalty.
5. The final exam must be written on the date scheduled by Keyano College.

**Academic Regulations:**

Use this link to view Keyano College's Academic Regulations:

<http://www.keyano.ca/Media/Collections/Calendars/Keyano.Calendar1011-02-academicregulations.pdf>

**IMPORTANT DATES**

Orientation Day	September 2
First Day of Class	September 3
Last day to ADD Courses	September 9
Tuition is due (\$100 late fee charged after this date)	September 9
Last day to DROP Courses with full refund (\$100 deposit is non-refundable)	September 16
Last day to WAIVE SAKC health and dental plan or add family	September 16
Last day to submit Keyano College Fall Awards Applications	September 30
Last day to WITHDRAW with a refund (50%)	October 10
Last day to WITHDRAW (Grade of W)	November 26

**Office of the Registrar:**

Address: 8115 Franklin Avenue  
T9H 2H7  
Fort McMurray

Email: [registrar@keyano.ca](mailto:registrar@keyano.ca)

Website: [www.keyano.ca](http://www.keyano.ca)

Phone: (780) 791- 4801

Fax: (780) 791 – 4952


Keyano College Main Switchboard Toll Free: 1-800-251-1408

\*It is your responsibility to contact the Office of the Registrar to complete the forms for withdrawal or change of registration, and any other required forms. Please refer to the list of important dates noted below.

Math is a course that requires many hours of practice and application. As Adults, I trust that you will determine how much practice you require to be successful in this class.

**AUTHORIZATION:**

This course outline has been authorized by the following individuals:

 _____ Gillian Whalen, Instructor
_____ Lisa Turner, Chair
_____ Guy Harmer, Dean
_____ Course Outline Effective Date: