



## I. Key Message/Expectations

Welcome! I am pleased to be your teacher and hope you enjoy learning about math as the year progresses. I am here to help you but it is my expectation that you come to class prepared and with a positive attitude and intention to learn.

I believe that every student can excel in mathematics. It is very important that you are using class time effectively and practicing each topic. Be sure to ask questions to clarify concepts. Please make sure you set an appointment with me as soon as possible to ensure you get the help you need!

The Math 20-2 course is designed to provide students with the mathematical understandings and critical-thinking skills needed for students who are on a path to pursue post-secondary education in a field that does **not** require calculus. This course requires excellent attendance, attitude, and effort in all aspects of the course. Students that are enrolled in this course are encouraged to develop lifelong learning habits such as problem solving, creativity, abstract thinking, showing your work, and resourcefulness in order to ensure their future success as a contributing member in the community. This course leads to Math 30-2.

Attendance is one of the most important factors for academic success! It is expected that you come to class every day on time with the materials you require for class. If an absence is pre-planned please inform your teacher as early as possible so that materials can be provided. If unplanned, please inform the teacher either by email ([sinclairm@prsd.ab.ca](mailto:sinclairm@prsd.ab.ca)) or when back in school.

## II. Course Overview

The goal of the study of mathematics is for students to:

- Use mathematics confidently to solve problems
- Communicate and reason mathematically
- Appreciate and value mathematics
- Make connections between mathematics and its applications
- Commit themselves to lifelong learning
- Become mathematically literate adults, using mathematics to contribute to society.

As per the Alberta Mathematics 20-2 Program of Studies, the following learning outcomes will be covered in this course:

### *Measurement 20%*

- Develop spatial sense and proportional reasoning
- Solve problems that involve scale diagrams, using proportional reasoning
- Demonstrate an understanding of the relationships among scale factors, areas, surface areas, and volumes of similar 2-D shapes and 3-D objects.

### *Geometry 15%*

- Derive proofs that involve the properties of angles and triangles.
- Solve problems that involve properties of angles and triangles.
- Solve problems that involve the cosine and sine laws.

### *Numbers and Logic 25%*

- Analyze and prove conjectures, using inductive and deductive reasoning, to solve problems.
- Analyze puzzles and games that involve spatial reasoning.
- Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands of square roots.
- Solve problems that involve radical equations of square or cube roots.

### *Statistics 15%*

- Demonstrate an understanding of normal distribution
- Interpret statistical data

### *Relations and Functions 25%*

- Demonstrate an understanding of the characteristics of quadratic functions.
- Solve problems that involve quadratic equations.

### *Mathematics Research Project*

- Research and give a presentation on a historical event or an area of interest that involves mathematics.

Math 20-2 is worth 5 credits towards graduation upon completion.

### III. Scope and Sequence

\*Please note this is an approximate timeline. Unit order and timeframe may change as needed\*

Unit and Textbook Chapter	Topics	General Time Frame (Number of Classes)	Weight
Radicals <i>Chapter 6</i>	- radical operations and radical expressions - radical equations	7	10%
Quadratic Functions and Equations <i>Chapter 7, 8</i>	- characteristics of quadratic functions: vertex, intercepts, domain and range, and symmetry - solve problems with quadratic equations	18	14%
Measurement <i>Chapter 1</i>	- spatial sense - proportional reasoning and rates - scale factor, areas, surface areas, volume	10	12%
Geometry and Trigonometry <i>Chapter 3, 4</i>	- proof of properties of triangles - angles and triangle problem solving - cosine and sine law	16	13%
Statistics <i>Chapter 5</i>	- normal distribution: standard deviation and z-scores - statistical data: confidence intervals, confidence levels, margin of error.	12	8%
Mathematical Reasoning <i>Chapter 2</i>	- inductive and deductive reasoning - analyzing puzzles and games	7	8%
Mathematical Research Project	- develop an appreciation of the role of mathematics in society	8	5%
Final Exam (date TBA)			30%

#### **IV. Teaching Methodology**

Students will be taught through a variety of different instructional methods and strategies including, but not limited to: direct teaching, cooperative learning, project-based learning, inquiry-based assignments, and technological means. Where appropriate, students may be allowed to use personal devices (see expectations in Student Handbook).

#### **V. Assessment**

There will be a number of small formative assignments and quizzes in class, as well as practice questions from the textbook. These assignments will not be taken for marks and are required to practice and develop the skills needed in each chapter and gain a deeper understanding of the course material. There will be several projects in this course. These projects are an opportunity for students to demonstrate a deep and meaningful understanding of the material.

Students should expect to be assessed for marks through the use of summative projects and unit tests. Assessment is based around the students' most recent demonstration of the course material. Opportunities for rewrites will be available. In the event a student does not hand-in an assignment, a NHI (not handed in) will be assigned on PowerSchool until it is and parents/guardians will be notified.

Students and parents are encouraged to use the school website and PowerSchool to keep informed of marks, attendance, etc. This site will be updated regularly to give an accurate representation of each student's achievement to date.

Course Breakdown:

- All Unit Assessments 70%
- Final Exam 30%

#### **VI. Resources**

- Foundations of Mathematics 11 Workbook: Absolute Value Publications (supplied by GPS)
- TI 83/84/TI-nspire Graphing Calculator (supplied by student)
- Pencils, highlighters, erasers, etc.