

# Mathematics 20 - 1 – Honours - Outline and Course Expectations

**Primary Resource:** McGraw-Hill Ryerson Pre-Calculus 11

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

<ul style="list-style-type: none"> <li>• solve problems</li> <li>• communicate and reason mathematically</li> <li>• make connections between mathematics and its applications</li> </ul>	<ul style="list-style-type: none"> <li>• become mathematically literate</li> <li>• appreciate and value mathematics</li> <li>• make informed decisions as contributors to society</li> </ul>
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## General Course Outcomes:

Students will

- Demonstrate an understanding of the absolute value of real numbers.
- Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands.
- Solve problems that involve radical equations (limited to square roots).
- Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials).
- Perform operations on rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials).
- Solve problems that involve rational equations (limited to numerators and denominators that are monomials, binomials or trinomials).
- Demonstrate an understanding of angles in standard position  $[0^\circ$  to  $360^\circ]$ .
- Solve problems, using the three primary trigonometric ratios for angles from  $0^\circ$  to  $360^\circ$  in standard position.
- Solve problems, using the cosine law and sine law, including the ambiguous case.
- Factor polynomial expressions of the form:
  - $ax^2+bx+c$ ,  $a \neq 0$  where  $a$ ,  $b$  and  $c$  are rational numbers.
- Graph and analyze absolute value functions (limited to linear and quadratic functions) to solve problems.
- Analyze quadratic functions of the form  $y = a(x - p)^2 + q$
- Analyze quadratic functions of the form  $y = ax^2 + bx + c$  to identify characteristics of the corresponding graph.
- Solve problems that involve quadratic equations.
- Solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables.
- Solve problems that involve linear and quadratic inequalities in two variables.
- Solve problems that involve quadratic inequalities in one variable.
- Analyze arithmetic sequences and series to solve problems.
- Analyze geometric sequences and series to solve problems.
- Graph and analyze reciprocal functions (limited to the reciprocal of linear and quadratic functions).

## Units of Study:

Textbook Chapters	Topic	Approximate Classes	Weighting %
Chapter 1	Sequences and Series	12	10
Chapter 2	Trigonometry	8	7
Chapter 3	Quadratic Functions	8	7
Chapter 4	Quadratic Equations	10	8
Chapter 5	Radical Expressions/Equations	8	7
Chapter 6	Rational Expressions/Equations	10	8
Chapter 7	Absolute Value and Reciprocal Functions	10	8
Chapter 8	Systems of Equations	6	4
Chapter 9	Linear and Quadratic Inequalities	8	6
Final Review and Exam		4	35

### *Within each chapter of study:*

Assignments	15%
Quizzes and Unit Exams	85%

### *The Final Mark will be composed of the following:*

Chapter Marks	65%
Final Exam	35%

## Responsibility

1. It is your responsibility as a student to have all of your homework completed prior to class; including checking and corrections.
2. It is your responsibility as a student to ask a question when you don't understand.
3. It is your responsibility as a student to help create a positive learning environment in the classroom.

## General Tips for Math

1. Always ask a question when you **FIRST** become confused – never go home with the plan to “*figure it out later.*”
2. Use class time productively; listen actively and take clear notes.
3. Math is a skill best acquired by practice – do **ALL** of your homework **EVERY NIGHT!**
4. Predict or estimate answers, and then check them against your final answer. This will help avoid most careless errors.
5. Show all of your work, step by step, to avoid mistakes and gain part marks even if your final answer is incorrect.
6. **Extra help is available by appointment.** Students must have specific questions and have caught up on any missed notes before extra help will be given.

## Classroom Expectations

1. **POSITIVE PARTICIPATION** is essential to this class. Students are expected to interact with each other, support and encourage academic achievement, orally explain and elaborate upon concepts being learned and be accountable for their learning.
2. **RESPECT** for others is crucial and expected.
3. Please arrive to class **ON TIME** and prepared to work with your workbook, your binder/notebook, a pen/pencil for writing and one of a different color for **corrections** or highlighting, and a calculator.
4. Hand in all assignments on the date specified. Assignments that are late without a valid extension will be accepted up to 3 days after the due date and will be penalized 15% /day.
5. Missed tests must be completed immediately upon your return to class and on your own time. You are responsible to make arrangements to make up the test. Quizzes and tests missed due to an **unexcused absence** will receive a grade of zero.
6. Cell phones are **NOT** to be used in the class at any time. Please see the student handbook for more information on this school-wide policy.
7. Individual music devices will **NOT** be allowed during my classes.

## Missed Classes:

Missing a math class for any reason other than an illness is not acceptable. Due to the large number of students missing classes for a variety of other reasons extra help is reserved for those students who have attended class but are having difficulty understanding the concepts taught; and for students who have been away because they are sick. You are expected to learn ALL concepts missed due to your illness. To best help you learn these concepts we need you to follow these simple steps:

1. All missed homework assignments can be found on twitter at <http://twitter.com/#!/MrBriner> or you can go to my webpage at [www.stachs.ca](http://www.stachs.ca).
2. Work through ALL of the examples presented in class.
3. Attempt all of the homework questions assigned.
4. Arrange for extra help from your teacher. At this point you and the teacher will be best prepared able and willing to help you learn the topics that were covered while you were ill.

Mr. Briner

You have chosen to take the highest level math course offered in Grade 11 in Alberta. This is a very challenging course. This course is not only designed for students who wish to attend university, but for students who wish to enter engineering, or any of the applied sciences. You will have to maintain excellent attendance and develop even better work habits, listening skills and study skills to be successful in this course. Extra help is available. ASK!! Be ready to be challenged every day! If this sounds exciting to you; then welcome to Math 20-1. You are in the right place!