Foundations and Pre-Calculus Math 10
Course Outline

Textbook: Mathematics 10 (McGraw-Hill Ryerson)

Learning Outcomes

Unit 1: Trigonometry

1-1 Students will be able to use the primary trigonometry ratios to find a missing side or angle in a right triangle.
1-2 Students will be able to solve a right triangle given the right angle and two other pieces of information.
1-3 Students will be able to use the trigonometry ratios to solve real life problems.

Unit 2: Exponents

2-1 Students will be able to evaluate powers with positive and negative exponents.
2-2 Students will be able to apply exponent laws to powers with positive and negative exponents to numeric bases.
2-3 Students will be able to apply exponent laws to powers with positive and negative exponents to variable bases.
2-4 Students will be able to apply exponent laws to powers with positive and negative exponents to combined numeric and variable bases.

Unit 3: Polynomials

3-1 Students will be able to write the prime factorization of a number and use it to find the GCF and LCM.
3-2 Students will be able to multiply 2 polynomials up to a binomial by trinomial.
3-3 Students will be able to factor out the greatest common factor of a polynomial.
3-4 Students will be able to factor a trinomial with a leading coefficient of one.
3-5 Students will be able to factor a difference of squares.
3-6 Students will be able to factor a perfect square trinomial.

Term 1 Review and Exam

Unit 4: Functions and Relations

4-1 Students will be able to identify a function from a table of values, ordered pairs and a graph.
4-2 Students will be able to state the domain and range of various types of data and graphs.
4-3 Students will be able to write and evaluate functions using function notation.
4-4 Students will be able to find the slope of a line from a graph, from two given points, and from an equation.

Unit 5: Linear Relations

5-1 Students will be able to switch between various forms of an equation of a line and be able to graph a line from any form of equation.
5-2 Students will be able to write the equation of a line in various forms, given a point and slope, two points on the line, or the graph of the line.
5-3 Students will be able to identify parallel and perpendicular lines from their equations and use that relationship to write the equation of another line.
5-4 Students will be able to find any piece of an arithmetic sequence.
5-5 Students will be able to write an arithmetic sequence in slope-intercept form.

Unit 6: Systems of Linear Equations

6-1 Students will be able to solve a system of linear equations graphically.
6-2 Students will be able to determine the number of solutions of a linear system.

6-3 Students will be able to solve a system of linear equations algebraically.
6-4 Students will be able to apply systems to solve real life applications.

Unit 7: Finance

7-1 Students will be able to identify the various ways that one can earn income.
7-2 Students will be able to explain the difference between gross and net income.
7-3 Students will be able to use tax tables to calculate income tax, CPP and EI.
7-4 Students will be able to identify the other types of deductions applied to paycheques.

Term 2 Review and Exam

Final Review and Exam

Students will also be developing their skills in the following curricular competencies:

Reasoning and analyzing

- Use reasoning and logic to analyze and apply mathematical ideas
- Estimate reasonably
- Demonstrate fluent and flexible thinking of number
- Use tools or technology to analyze relationships and test conjectures
- Model mathematics in contextualized experiences

Understanding and solving

- Develop, demonstrate, and apply mathematical understanding through play, inquiry and problem solving
- Visualize to explore and illustrate mathematical concepts and relationships
- Apply flexible strategies to solve problems in both abstract and contextualized situations
- Engage in problem - solving experiences that are connected to place, story, and cultural practices and perspectives relevant to local First Peoples communities, as well as other cultures

Communicating and representing

- Communicate mathematical thinking in many ways
- Use mathematical vocabulary and language to contribute to mathematical discussions
- Represent mathematical ideas in a variety of ways
- Explain and justify mathematical ideas

Connecting and reflecting

- Reflect upon mathematical thinking
- Use mathematics to support personal choices
- Connect mathematical concepts to each other and to other areas and personal interests
- Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts.

Assessment:

For each term: The term mark will be determined using the following weightings:

Quizzes/Assignments: 15%

(Note: as quizzes are used primarily for formative assessment (i.e. giving students feedback on their understanding of the concepts), the quizzes will only count towards a student's term mark if they are as good or better than their unit tests)

Unit Tests/Projects: 60%

Term Exam: 25%

Final Mark: The final mark will be determined using the following weighting. Term 1: 40%, Term 2: 40% and Final Exam: 20%