Seycove Secondary

Course: Mathematics 10

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Website Information: MS Teams **Math 10**

Course Description

In our increasingly technological society, students require the ability to solve problems, understand and use mathematics, interpret the results, and explain their findings. Mathematics 10 is a means of gaining these necessary skills. Students will explore reasoning, problem solving, communicating and connecting mathematical concepts.

A solid grounding in Mathematics 10 helps students succeed in future courses. For example, many universities require Pre-Calculus 11 for admission to math, science, business and engineering programs. Some universities require math courses to be done in class, rather than on-line, to ensure that students master the course content. Classroom instruction additionally provides constant and consistent feedback to produce not only correct solutions, but those that are mathematically elegant.

Students will be writing the B.C. Government Numeracy Assessment this year. We will review this material before the assessment to ensure that students are well prepared to write the exam.

Enduring Understandings and Big Ideas

By the end of this course students is expected to understand that:

- Algebra allows us to generalize relationships through abstract thinking
- The meanings of, and connections between, operations extend to powers, radicals and polynomials
- Linear relations represent a consistent rate of change between two factors
- Trigonometry involves using proportional reasoning to solve indirect measurement problems
- Arithmetic sequences are similar to linear relationships

Inquiry Questions

- How can we factor polynomials and rational expressions?
- What makes a function graph elegant?
- How can we solve a system of equations using algebra, graphs, or technology?
- How are linear expressions used everyday?
- How are the primary trigonometric functions (sine, cosine, and tangent) used by technicians?
- How are payroll deductions calculated from various types of income?

Course Content

By the end of this course, a student should be able to do the following.

Number Systems

- Solve complex equations using order of operations
- Use exponent laws with numerical and variable bases
- Identify all factors of a number
- Determine GCF (greatest common factor) and LCM (least common multiple) for a set of numbers
- Use function notation, $f(x)$
- Solve systems of equations using substitution or elimination
- Facotr trinomials including difference of squares

Graphing

- Use graphs to solve systems of linear equations
- Understand equations that generate linear graphs
- Demonstrate equations of horizontal, vertical, and perpendicular lines

Trigonometry

- Use sine, cosine, and tangent to solve right-triangle problems
- Determine missing sides or angles of a right-triangle

Financial Literacy

- Understand types of income
- Calculate payroll deductions

Arithmetic Sequences

- Connect arithmetic sequence to linear functions
- Apply formal math language (common difference, first term, general term) to increasing and decreasing linear patterns

Learning Plan

Learning will occur through the following activities.

- note-taking/active listening
- group work/peer teaching
- completing assigned questions
- assignments/worksheets done in class and at home
- asking questions of the teacher both in and out of class

Feedback from these activities is used to prepare students for formative assessments.

Classroom Expectations and Necessities

As with all courses, students are expected to attend all classes, arrive on time, behave respectfully towards staff and other students, actively participate in the lessons and work to the best of their ability. Please note that students with unexplained absences for tests or quizzes will receive a reduced mark. Students should also be aware of the Seycove Code of Conduct in regards to plagiarism. I consider allowing others to copy your work as cheating and thus both the student copying the work and the one allowing his or her work to be copied will receive a reduced mark. Technology can be used in the classroom but a student may need to put it away if is becomes a distraction.

You must have a scientific calculator for this course. My preferred calculator is TI-30XIIS available at Walmart, Staples, and other stores for less than $20. I like this calculator as it shows both the final answer and the student's calculations. This can be very helpful when determining calculator input errors. Some student may want a graphing calculator. The calculator emulator I use in class (and the one most teachers use) is from Texas Instruments. Normal supplies such as pencil, paper and textbook are also required each class. Students wishing to complete their work on a computer are welcome to do so. Only computer-based students should submit their work in a typed form. All other students should submit hand-written work. Computer-based students found playing computer games in class lose the privilege to work on a computer. Course marks are calculated as follows.

Tests	50%
Quizzes	30%
Assignments	20%

All quizzes are formative. This means that if a student achieves an A on the chapter or unit test, they will receive a higher mark on the chapter quiz. There is no final exam in this course as the students write the BC Government Numeracy Assessment.

Grade Expectations

An "A" student can:

- Demonstrate and apply the curricular competencies
- Analyze the information and synthesize the correct solution
- Discern challenging patterns
- Apply the concepts and extrapolate onto contextualized situations
- Demonstrate superb command of numeracy (no computational error)
- Solve challenging problems in familiar and unfamiliar situations

A "B" student can:

- Sometimes demonstrate and apply the curricular competencies
- Analyze the information and synthesize the solution
- Identify the complex patterns within the context of the problem
- Apply the concepts and understand some details in contextualized situations
- Demonstrate good command of numeracy
- Solve challenging problems in familiar situations

A “C” student can:

- Demonstrate the curricular competencies
- Organize the information and attempt to interpret the solution
- Identify the patterns within the context of the problem
- Build on learned concepts but is still working on finding details in contextualized situations
- Solve routine two-step problems

Resources

The textbook is McGraw-Hill Ryerson’s Pre-Calculus 10 (replacement cost $80) is available to borrow from the school library.

Curricular Competencies are detailed at the following link.

https://curriculum.gov.bc.ca/curriculum/mathematics/10/foundations-or-mathematics-and-pre-calculus