Course Outline for Parents / Guardians

teacher	Colin McLellan
email	cmclellan@sd38.bc.ca
website	www.mrmclellan.ca
textbook	MathPower 10
curriculum	Principles of Mathematics 10 Integrated Resource Package available at: http://www.bced.gov.bc.ca/irp/prmath1012.pdf
provincial exam	June 28, 2010, 9:00 AM
overview	Math 10 is an academic course that introduces students to radical numbers, algebra, geometry, functions, graphing, and trigonometry. This semester we will have eighty-seven classes to cover the curriculum, and these will be followed by a mandatory provincial exam worth 20% of a student's mark.
difficulty	I consider it the most difficult of all high school math courses considering the age and background of the students taking it. It is much more difficult than Math 9 and many students do not appreciate this fact until it is too late. While no one method of study can serve each student, students who find success in this course can usually be described as follows: • They do all their homework and confirm that they are doing it correctly; • They ask questions if they are even slightly confused about something covered in class; • They review previously-tested topics throughout the year; • They do not cram before tests, and especially not before the provincial exam. I can say quite confidently that students who do none of the above are almost certain to fail. For students who are falling behind, I am always happy to help outside of class time. I am usually available after school, but students should confirm with me before showing up.

alternatives	Principles of Math 10 is not a required course. Students who do not plan on attending University may choose to take Essentials of Math 10 instead, although they should consult their counsellor before making this switch.
Mobile phones and music players	After much hassle with this issue over the years, I have decided to ban mobile phones from my class without exception. Please encourage your child to leave these in his or her locker. I will confiscate them on sight and return them at the end of the day. I am okay with music players as long as they are not contained within mobile phones, and are used at designated times in a manner that does not disturb others.
learning outcomes	Attached to this sheet are the learning outcomes for this course as prescribed by the Ministry of Education
grading	I grade students' achievement based only on their ability to meet the learning outcomes attached. Consequently, there are no marks given for completion of homework, attendance, punctuality, participation, attitude, effort, or anything else not on the learning outcomes. All of these do, however, affect a student's work habits, which are reported on report cards as being good (G), satisfactory (S), or needing improvement (N). In my opinion, a student's work habits are a more relevant indicator of their development than their actual achievement mark. I view a student who receives a "C-" grade with a "G" for work habits as performing better in my class than a student who receives an "A" and an "N". One of my aims as a teacher is to provide meaningful feedback to students and parents about a student's achievement in my class. I do not believe that a single number can adequately reflect a student's progress, so I keep track of student achievement in terms of learning outcomes. Although eventually this will get reduced to a single number, I will try to always report this number with details about where students have done well, and where they need to focus their efforts to improve.
communication with parents and guardians	You can contact me at any time about your child's progress in this class. On weekdays you should receive a response within a few hours at most if you email me at the address on the reverse. You can also check my website at www.mrmclellan.ca for information on homework and upcoming events. In any event, **I would appreciate it if you would either email or phone me at school (604-668-6575) to let me know that you have received this notice.** Please let me know if you would like me to send you periodic updates on your child's achievement and work habits in this class and I will endeavour to do so. If you have any questions, comments, or concerns at any point throughout the semester, don't hesitate to get in touch.

Prescribed Learning Outcomes: Principles of Mathematics 10

It is expected that students will:

Number

A1 classify numbers as natural, whole, integer, rational, or irrational and describe contexts where they are used

A2 describe how natural, whole, integer, rational, and irrational number sets are "nested" within the real number system

A3 perform arithmetic operations on irrational numbers, using appropriate decimal approximations

A4 perform operations on irrational numbers of monomial and binomial form, using exact values

A5 explain and apply the exponent laws for powers of numbers, including

- $x^m \bullet x^n = x^{m+n}$
- $x^m \div x^n = x^{m-n}$
- $(x^m)^n = x^{mn}$
- $(xy)^m = x^m y^m$
- $\left(\frac{x}{y}\right)^m = \frac{x^m}{y^m},\ y \neq 0$
- $x^0 = 1,\ x \neq 0$
- $x^{-m} = \frac{1}{x^m},\ x \neq 0$

A6 explain and apply the exponent laws for powers of numbers and for variables with rational exponents

Patterns and Relations

Patterns

B1 use expressions to represent general terms for arithmetic growth, and apply these expressions to solve problems

B2 use expressions to represent sums for arithmetic growth, and apply these expressions to solve problems

B3 relate arithmetic sequences to linear functions defined over the natural numbers

Variables and Equations

B4 factor polynomial expressions of the form

- $ax^2 + bx + c$
- $a^2x^2 - b^2y^2$

B5 find the product of polynomials (i.e., monomials, binomials, trinomials)

B6 divide a polynomial (P or $P(x)$) by a binomial (D or $D(x)$) and express the result in the forms

- $\frac{P}{D} = Q + \frac{R}{D}$
- $P(x) = D(x)Q(x) + R$, where Q and $Q(x)$ denote the quotient and R denotes the remainder

B7 determine equivalent forms of simple rational expressions with polynomial numerators, and denominators that are factorable monomials, binomials, or trinomials

B8 determine the non-permissible values for the variable in rational expressions with polynomial numerators, and denominators that are factorable monomials, binomials, or trinomials

B9 perform the operations of addition, subtraction, multiplication, and division on rational expressions with polynomial numerators, and denominators that are monomials, binomials, or trinomials

B10 find and verify the solutions of rational equations that reduce to linear form

Prescribed Learning Outcomes: Principles of Mathematics 10

Organizer 'Patterns and Relations' continued from page 20

Relations and Functions

B11 describe a linear function in terms of
- ordered pairs
- a rule, in word or equation form
- a graph

B12 use function notation to evaluate and represent linear functions

B13 determine the following characteristics of the graph of a linear function, given its equation
- x- and y-intercepts
- slope
- domain
- range

B14 sketch the graph of a linear function given its equation in the form
- $ax + by + c = 0$ (general form)
- $y = mx + b$ (slope-intercept form)

B15 represent linear data, using linear function models

B16 solve problems involving partial variation and arithmetic sequences as applications of linear functions

SHAPE AND SPACE

Measurement

C1 solve 2-D and 3-D problems involving two right triangles

C2 extend the concepts of sine and cosine for positive angles through to 180°

C3 apply the sine and cosine laws to solve problems (excluding the ambiguous case)

3-D Objects and 2-D Shapes

C4 solve problems involving distances between points in the coordinate plane

C5 solve problems involving midpoints of line segments

C6 solve problems involving rise, run, and slope of line segments

C7 determine the equation of a line, given information that uniquely determines the line

C8 solve problems involving slopes of
- parallel lines
- perpendicular lines