PRE-CALCULUS 11 (ONLINE)

INSTRUCTOR: Marg Koetsier
EMAIL: mkoetsier@sd43.bc.ca
PHONE: 604–945–4211 (CLOC office)
SCHEDULE: Monday/Wednesday 10:00am–2:00pm
    Tuesday/Wednesday 5:00pm–9:00pm
LEARNING CENTRE HOURS: Monday–Thursday   10:00am–2:00pm
    Monday–Thursday   5:00pm–9:00pm
    The Learning Centre is closed all statutory and school holidays.

INTRODUCTION

The general objectives of Pre-Calculus 11 are to develop algebraic reasoning and number sense, to develop trigonometric reasoning, and to develop algebraic and graphical reasoning through the study of functions and relations. The following mathematical processes have been integrated throughout the course: communication, problem solving, connections, mental mathematics and estimation, reasoning, technology, and visualization. Pre-Calculus 11 is designed to prepare students for Pre-Calculus 12 and for post-secondary programs that involve math and science.

PRESCRIBED LEARNING OUTCOMES   *It is expected that students will:*

Algebra and Number:

- A1   *demonstrate an understanding of the absolute value of real numbers*
- A2   *solve problems that involve operations on radicals and radical expressions with numerical and variable radicands*
- A3   *solve problems that involve radical equations (limited to square roots)*
- A4   *determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials, or trinomials)*
- A5   *perform operations on rational expressions (limited to numerators and denominators that are monomials, binomials, or trinomials)*
- A6   *solve problems that involve rational equations (limited to numerators and denominators that are monomials, binomials, or trinomials)*

Trigonometry:

- B1   *demonstrate an understanding of angles in standard position (0º to 360º)*
- B2   *solve problems, using the three primary trigonometric ratios for angles from 0º to 360º in standard position*
- B3   *solve problems, using the cosine law and sine law, including the ambiguous case*

Relations and Functions:

- C1   *factor polynomial equations of the form:*

  $$ax^2 + bx + c = 0 \,, \, a \neq 0$$
  $$a^2 x^2 - b^2 y^2 = 0 \,, \, a \neq 0 \,, \, b \neq 0$$
  $$a\left(f(x)\right)^2 + b\left(f(x)\right) + c = 0 \,, \, a \neq 0$$
  $$a^2 \left(f(x)\right)^2 - b^2 \left(g(y)\right)^2 = 0 \,, \, a \neq 0 \,, \, b \neq 0$$

  where a, b, and c are rational numbers
- C2   *graph and analyze absolute value functions (limited to linear and quadratic functions) to solve problems*

C3	*analyze quadratic functions of the form $y = a(x-p)^2 + q$ and determine the vertex, domain and range, direction of opening, axis of symmetry, and x- and y-intercepts*
C4	*analyze quadratic functions of the form $y = ax^2 + bx + c$ to identify characteristics of the corresponding graph, including vertex, domain and range, direction of opening, axis of symmetry, and x- and y-intercepts*
C5	*solve problems that involve quadratic equations*
C6	*solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables*
C7	*solve problems that involve linear and quadratic inequalities in two variables*
C8	*solve problems that involve quadratic inequalities in one variable*
C9	*analyze arithmetic sequences and series to solve problems*
C10	*analyze geometric sequences and series to solve problems*
C11	*graph and analyze reciprocal functions (limited to the reciprocal of linear and quadratic functions)*

LEARNING RESOURCES

The self-paced Pre-Calculus 11 online course does not require a textbook. All lessons and practice materials are provided online. Following registration, you will receive an email which will provide the website for the online course as well as your individual username and password information.

PRE-CALCULUS 11 at Coquitlam Learning Opportunity Centre

Pre-Calculus 11 at CLOC is a self-paced, self-directed course. You will be expected to work independently and to manage your time productively. If needed, face-to-face individual help is available at CLOC. An important element for success in Pre-Calculus 11 will be your study skills. Successful students establish a study schedule and stick to it. You will find it is much more effective to do some math practice every day or two rather than to do marathon sessions to prepare for a test.

EVALUATION

Evaluation in Pre-Calculus 11 includes unit tests, a midterm test, and a final exam. All tests include both multiple-choice and written-response questions. To encourage mastery of course content, **one** rewrite will be available for each unit test. There are **no** rewrites for the midterm test or the final exam. The tests will be weighted as follows:

TEST	CONTENT	PERCENT
Unit 1	Arithmetic and Geometric Sequences and Series	6
Unit 2	Absolute Value and Radicals	6
Unit 3	Factoring Polynomials	4
Unit 4	Rational Expressions	8
Unit 5	Quadratic Functions	8
Midterm	Units 1–5	15
Unit 6	Solving Quadratic Equations	6
Unit 7	Solving Systems of Equations	8
Unit 8	Trigonometry	8
Unit 9	Absolute Value and Reciprocal Functions	6
Final Exam	Units 1–9	25
		100