



PRE-CALCULUS 12

TEACHER: Mr. Basil Williams

ROOM: 109

EMAIL: basil.williams@pattisonhighschool.ca

TEXTBOOK: iWrite Math 12: Pre-Calculus Mathematics – BC Edition

COURSE OBJECTIVE

Pre-Calculus 12 extends students' understanding of advanced algebra, functions, trigonometry, and mathematical reasoning in preparation for post-secondary studies in mathematics, sciences, and engineering.

The course emphasizes problem-solving, reasoning, and modelling to make meaningful connections between mathematical concepts and real-world contexts. Students will:

- Model and analyze real-world data using polynomial, exponential, logarithmic, rational, and sinusoidal functions.
- Develop fluency with transformations, sequences and series, and trigonometric identities.
- Apply combinatorics and probability to situations involving chance and uncertainty.
- Explore financial planning concepts, including investments, annuities, and loans.
- Strengthen problem-solving, reasoning, and reflective practices, viewing mistakes as opportunities for growth.
- Connect mathematical concepts across topics, cultures, and contexts, including First Peoples perspectives where appropriate.

The course will encourage students to persistence; engage in reflective practice; and foster the ability to **generalize, connect, and communicate mathematical ideas** with multiple representations (symbolic, graphical, numerical).

SUPPLEMENTARY RESOURCES

YouTube: *Mathematics is the sense you never knew you had* | Eddie Woo | TEDxSydney

Book: *A Mathematician Reads the Newspaper* – John Allen Paulos

Book: *How Not to Be Wrong: The Power of Mathematical Thinking* – Jordan Ellenberg

Book: *Mathematical Sorcery* – David Berlinski



COURSE CONTENT

Unit 0 – Problem Solving and Reflective Practice

Unit 1 – Functions and Relations

Unit 2 – Transformations Part I

Unit 3 – Transformations Part II

Unit 4 – Exponential and Logarithmic Functions

Unit 5 – Applications of Exponential and Logarithmic Functions

Unit 6 – Geometric Sequences and Series

Unit 7 – Polynomial and Rational Functions

Unit 8 – Trigonometry: Functions and Graphs

Unit 9 – Trigonometry: Equations and Identities

Unit 10 – Combinatorics and Probability

Unit 11 – Financial Planning

Final Exam Preparation and Assessment

SUPPLIES (to be brought to every class)

2-inch 3-RING binder with lined paper

Pencils, eraser, Ruler*, Protractor*, Compass (OR *Complete Geometry set)

Scientific or Graphing Calculator (Recommended models: TI-83/84 or Desmos app)

Scientific or graphing calculators must have trigonometric functions

MARK BREAKDOWN

Classwork 20%

Includes readings, activities, and workbook assignments.

Quizzes and Tests 30%

There will be a quiz on the topics we covered in class after each unit is completed.

There will be approximately 4 tests throughout the term

Quizzes are open book and tests closed book.

Mid and Term Finals 30%

Both mid-term and final exams will be cumulative tests covering multiple units.

Final Exam 20%

There will be a final examination covering the entire course



ASSESSMENT PHILOSOPHY

Classwork, quizzes and tests guide students' academic growth and support reflection, helping them adjust strategies and deepen conceptual understanding and procedural fluency.

Midterm, term finals, final exams measure mastery of concepts and readiness for higher level math-related courses as well as post-secondary studies.

This balance of ongoing and cumulative assessment reflects BC's **Big Ideas**: *Reflective practice strengthens reasoning and persistence*

Students are encouraged to use reflection and revision as tools for growth and preparation.