



# PATTISON HIGH SCHOOL

*We don't teach a class, we teach individual students in a class*

## Pre-Calculus 11

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### Basic Information

Email: timothy.chan@pattisonhighschool.ca  
Location: Room 109  
Session: 12:35 pm - 2:05 pm (Short: 12:05 pm - 1:20 pm)  
Office Hour: 8:15 am - 4:15 pm

### Course Description

This course is designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into post-secondary studies in programs that require the study of theoretical calculus. Typically, a student would be planning to enter a college or university in a mathematics, science, engineering, medicine, or commerce program. The main areas of study include the real number system, powers with rational exponents, radical and rational operations and equations, factoring, quadratic functions and equations, inequalities, trigonometry, and financial literacy. This course gives students the graduation requirement in mathematics.

### Big Ideas

- Algebra allows us to generalize relationships through abstract thinking
- The meanings of, and connections between, operations extend to powers, radicals, and polynomials
- Quadratic relationships are prevalent in the world around us
- Trigonometry involves using proportional reasoning to solve indirect measurement problems

### Resources

Textbook: iWrite Pre-Calculus Mathematics 11 Book British Columbia Edition

## Topics

Chapter	Content
1. Exponents and Radicals	Classifying Real Numbers Introduction to Radicals Entire Radicals and Mixed Radicals - Part One Entire Radicals and Mixed Radicals - Part Two Applications of Radicals Rational Exponents Part One Rational Exponents Part Two
2. Operations on Radicals	Adding and Subtracting Radicals Multiplying Radicals Dividing Radicals - Part One Dividing Radicals - Part Two
3. Factoring and Applications	Review of Factoring Common Factors and Grouping Factoring Trinomials of the Form $ax^2 + bx + c$ Factoring Trinomials of the Form $a(f(x))^2 + b(f(x)) + c$ Factoring $a^2x^2 - b^2y^2$ and $a^2(f(x))^2 - b^2(f(x))^2$ Solving Quadratic Equations Using Factoring Solving Radical Equations Using Factoring
4. Trigonometry - Angles and Ratios	Rotation Angles and Reference Angles Trigonometric Ratios for Angles from $0^\circ$ to $360^\circ$ Applications of Reference Angles and the CAST Rule Solving Simple Trigonometric Equations Special Triangles and Exact Values The Unit Circle
5. Trigonometry - Sine and Cosine Laws	Review of Right Triangle Trigonometry The Sine Law The Cosine Law Problem Solving and the Ambiguous Case of The Sine Law

	Further Applications Involving The Sine Law and The Cosine Law
6. Quadratic Functions and Equations	<p>Connecting Zeros, Roots, and <math>x</math>-intercepts</p> <p>Analyzing Quadratic Functions - Part One</p> <p>Analyzing Quadratic Functions - Part Two</p> <p>Equations and Intercepts from the Vertex and a Point</p> <p>Converting from General Form to Standard Form by Completing the Square</p> <p>Solving Quadratic Equations - The Quadratic Formula</p> <p>Roots of Quadratic Equations - The Discriminant</p> <p>Applications of Quadratic Functions - A Graphical Approach</p> <p>Applications of Quadratic Functions - An Algebraic Approach</p>
7. Rational Expressions and Equations	<p>Simplifying Rational Expressions - Part One</p> <p>Simplifying Rational Expressions - Part Two</p> <p>Addition and Subtraction of Rational Expressions - Part One</p> <p>Addition and Subtraction of Rational Expressions - Part Two</p> <p>Multiplication of Rational Expressions</p> <p>Division of Rational Expressions</p> <p>Rational Equations - Part One</p> <p>Rational Equations - Part Two</p> <p>Solving Problems Involving Rational Equations</p>
8. Inequalities	<p>Linear Inequalities and Interval Notation</p> <p>Solving Quadratic Inequalities in One Variable by Case Analysis</p> <p>Solving Quadratic Inequalities in One Variable by Sign Analysis</p> <p>Problem Solving Involving Inequalities</p>

9. Financial Mathematics	Simple Interest and Compound Interest Investments Using Compound Interest Basic Loans Using Compound Interest Mortgages Buying, Renting, and Leasing
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## Expectations

### Attendance

Students are expected to attend each class and notify the school if and when they have to be absent, giving a suitable reason for the absence.

Students should arrive at their classes on time and be prepared to study. They should not normally expect to leave the classroom near the beginning or end of class.

### Clothing and Appearance

School clothing must be evident as the outer layer while in the classroom.

Body modification, in any of its forms, may not be suitable for the school community and may require a return to an original presentation.

### Electronic Devices

Students must turn off their cell phones during class, and put them in their locker.

Ear buds and headphones are prohibited in the classroom, unless specifically allowed.

### Attitude

In order to succeed, it is important that students pay close attention in every class, attend and participate in all class activities, do all homework assignments on time, and bring materials to class such as a printed English language dictionary, a binder in which to keep notes and papers, and stationary.

### Language

The use of the English language at all times when in the classroom.

## **Classroom Environment**

It is important to keep the classroom clean and tidy. Other than water, no food or drink is permitted in the classroom.

## **Honesty**

Students always present work that is their own, original work - and not the result of cheating or plagiarism; the course is founded upon the trust in academic honesty.

## **Evaluation**

<b>Course Work</b>	<b>Percentage</b>
Homework	20%
Quizzes	20%
Midterm	20%
Final Exam	40%
<b>Total</b>	<b>100%</b>