

# Pre-Calculus 11 Spring 2024



## Course Outline

**Teacher:** Ms. Powell

**Email:** principal@pattisonhighschool.ca

### Course Description

Pre-Calculus 11 is a challenging course designed for students to learn specific algebra and trigonometry concepts as well as develop critical thinking skills desired for calculus and post-secondary studies in the sciences. Students are encouraged to evaluate and reflect on their own learning, evaluate other students' problem-solving methods, and apply this knowledge to real-world applications. They will also apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information.

### Pre-Calculus 11 focuses on the following 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.
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### Course Materials

- A scientific calculator – a graphing calculator is recommended
- A binder and lined paper, or a notebook and file
- Pearson's Pre-Calculus 11 My WorkText BC Edition, 2020
- Microsoft Teams to find handouts, notes and announcements

### Evaluation Scheme

- Homework and Assignments: 10%
- Quizzes: 25%
- Unit Tests/Projects: 40%
- Final Exam: 25%

**Homework** marks will come from the completion of daily questions assigned. Completion of the daily homework will prepare you for your tests. If you are absent, it is important that you check with teams or send a message to the teacher to ensure you make efforts to keep up with materials.

**Assignments/Projects** will be varied, but will be submitted for grades. Examples of an assignment be used to help identify attainment of the Curricular Competencies for mathematics:

- Reasoning and modelling
- Understanding and solving
- Communicating and representing
- Connecting and reflecting

**Unit Tests/Quizzes** must be written in class. If you have an excused absence from class, you will be expected to complete assessments upon your first day back, unless otherwise arranged with the teacher.

## Content

Unit	Topic	Content
1	<p><b>Operations on Radicals and Powers</b></p> <p>Chapter 1 Roots and Powers</p> <p>Chapter 2 Radical Operations and Equations</p>	<ul style="list-style-type: none"> <li>• Classifying Real numbers</li> <li>• Simplifying radicals</li> <li>• Ordering a set of irrational numbers</li> <li>• Performing operations with radicals</li> <li>• Solving radical equations</li> <li>• Identifying domain restrictions and extraneous roots</li> <li>• Positive and negative rational exponents</li> <li>• Evaluation using order of operations</li> </ul>
2	<p><b>Quadratic Functions, Equations and Inequalities</b></p> <p>Chapter 3 Solving Quadratic Equations</p> <p>Chapter 4 Analyzing Quadratic Functions and Inequalities</p>	<ul style="list-style-type: none"> <li>• Greatest common factor of a polynomial</li> <li>• Trinomials of the form <math>ax^2 + bx + c</math> and <math>a(f(x))^2 + b(f(x)) + c</math></li> <li>• Difference of squares of the form <math>a^2x^2 - b^2y^2</math> and <math>a^2(f(x))^2 - b^2(f(x))^2</math></li> <li>• Solving equations algebraically</li> <li>• Connecting equation-solving strategies</li> <li>• Identifying characteristics of graphs (domain, range, intercepts, vertex, symmetry) and function notation</li> <li>• Exploring transformations</li> <li>• Connecting equations with functions</li> <li>• Single variable inequalities</li> <li>• Domain and range restrictions from problems in situational contexts</li> <li>• Sign analysis: identifying intervals where a function is positive, negative or zero</li> <li>• Symbolic notation for inequality statements, including interval notation</li> <li>• Solving problems in context</li> </ul>

Unit	Topic	Content
3	<b>Trigonometry</b> Chapter 5	<ul style="list-style-type: none"> <li>• Angles in standard position (degrees), including special angles</li> <li>• Unit circle</li> <li>• Reference and coterminal angles</li> <li>• Trigonometric ratios</li> <li>• Trigonometric equations</li> <li>• Use of sine and cosine laws to solve non-right triangles, including ambiguous case</li> <li>• Contextual and non-contextual problems</li> </ul>
4	<b>Rational Expressions and Equations</b> Chapter 6	<ul style="list-style-type: none"> <li>• Simplifying and applying operations to rational expressions</li> <li>• Identifying non-permissible values</li> <li>• Solving equations and identifying extraneous roots</li> </ul>
5	<b>Financial Literacy</b> Chapter 7	<ul style="list-style-type: none"> <li>• Simple Interest</li> <li>• Compound interest</li> <li>• Investment/loans with regular payments</li> <li>• Buy/lease</li> </ul>

### **Class Rules and Expectations**

1. Students are expected to adhere to the PHS Student Code of Conduct at all times. This includes being in uniform and using English while present in class.
2. Attend on time! If you are more than 15 minutes late, you will be marked absent.
3. Do not use your phones while in a class session unless permission has been given. If permitted to use your phones, that is strictly for class work, which means translation, research, or group work. This does not mean snapchat, Instagram, Facebook, Twitter, or any other social media! A laptop computer will be expected at times for work on assignments.
4. Cheating in any way is not tolerated under any circumstances. If you copy your work from an online source or classmates, you will be given a grade of zero