

# CLARKSON SECONDARY SCHOOL

**Course Code:** MPM 2D0

**Course Name:** Principles of Mathematics  
Grade 10 Academic

**Prerequisite:** MPM1D0

**Material Required:**

Principles of Mathematics  
(Addison-Wesley)

**Textbook Replacement Cost:** \$100

**Course Description**

This course enables students to broaden their understanding of relationships and extend their problem-solving and algebraic skills through investigation, the effective use of technology, and abstract reasoning. Students will explore quadratic relations and their applications, solve and apply linear systems, verify properties of geometric figures using analytic geometry, and investigate the trigonometry of right and acute triangles. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

**Overall Course Expectations**

By the end of the course, students will:

- determine the basic properties of quadratic relations; relate transformations of the graph  $y=x^2$  to the algebraic representation  $y=a(x-h)^2 + k$ ; solve quadratic equations and interpret the solutions with respect to the corresponding relations; solve problems involving quadratic relations.
- Model and solve problems involving the intersection of two straight lines; solve problems using analytic geometry involving properties of lines and line segments; verify geometric properties of triangles and quadrilaterals using analytic geometry.
- use their knowledge of ratio and proportion to investigate similar triangles and solve problems related to similarity; solve problems involving right triangles; using the primary trig ratios and the Pythagorean theorem; solve problems involving acute triangles using the sine law and the cosine law.

**ASSESSMENT BREAKDOWN INCLUDING CATEGORIES AND WEIGHTINGS.**

**Formative assessments are learning practices that provide important feedback to student progress and include homework checks, exit tickets, self assessments to name a few.**

**Summative assessments form the foundation for final mark allocation at the end of a unit, term and exam.**

| CATEGORIES        | % WEIGHT OF FINAL GRADE |
|-------------------|-------------------------|
| Knowledge         | 30                      |
| Application       | 20                      |
| Thinking          | 10                      |
| Communication     | 10                      |
| Final Examination | 30                      |
| <b>TOTAL</b>      | <b>100</b>              |

| Unit                                   | Unit Breakdown   | Assessments   |
|--|--|---|
| 1. Coordinate Geometry                 | Length of a Line Segment; Midpoint of a Line Segment; The Equation of a Line: Slope- intercept form, Standard Form; Properties of Triangles and Quadrilaterals using coordinate geometry; The Equation of a Circle; Using Geometer's Sketchpad             | Unit Evaluation:<br>Test and/or quizzes                                     |
| 2. Linear Systems                      | Solving Systems of Equations by Graphing; Solving Systems of Equations by Substitution; Solving Systems of Equations by Elimination; Solving Word Problems Using Algebraic Modelling   | Unit Evaluation:<br>Test and/or quizzes                                     |
| 3. Introduction to Quadratic Functions | Parabolas and Quadratic Functions; The Parabola of Best Fit (by hand and through the use of the graphing calculator), Graphs of Quadratic Function (by hand and through the use of the graphing calculator); Projectile Motion                             | Unit Evaluation:<br>Test and/or quizzes                                     |
| 4. From Algebra to Quadratic Equations | Common Factoring, Multiplying Two Binomials; Factoring Trinomials of the form : $x^2 + bx + c$ , $ax^2 + bx + c$ , Factoring a Difference of Squares; Solving Quadratic Equations by Factoring;, by using Square roots, by Formula                         | Unit Evaluation:<br>Test and/or quizzes                                     |
| 5. Analysing Quadratic Functions       | Revisiting Quadratic Functions; Sketching the Graph: $y = ax^2 + bx + c$ ; Transforming the Graph: $y = x^2$ ; Relating the Graphs: $y = a(x - p)^2 + q$ and $y = ax^2 + bx + c$ ; Applications of Quadratic Functions                                     | Unit Evaluation:<br>Test and/or quizzes<br>In class assignments<br>Graphing |
| 6. Congruence and Similarity           | Congruent Triangles; Properties of Similar Triangles; Sufficient Conditions for Similar Triangles; Solving Problems Using Similar Triangles  | Unit Evaluation:<br>Test and/or quizzes                                     |
| 7. Trigonometry                        | The Tangent, Sine and Cosine Ratios; Applications of Trigonometry; Problems Involving more than one Right Triangle; Calculating Measures in Acute Triangles; Relationships in Acute Triangles; The Sine and Cosine Laws; Measuring Inaccessible Distances. | Unit Evaluation:<br>Test and/or quizzes                                     |

**LEARNING SKILLS** Learning Skills will be reported on the student's report card. The following chart indicates the skills and look-fors for each student.

| WORKS INDEPENDENTLY   | TEAMWORK  | ORGANIZATION  | WORK HABITS/HOMEWORK  | INITIATIVE   | SELF-REGULATION  |
|---|---|---|---|--|--|
| <p><b>The student:</b></p> <ul style="list-style-type: none"> <li>▪ accomplishes tasks independently</li> <li>▪ accepts responsibility for accomplishing tasks</li> <li>▪ follows instructions</li> <li>▪ regularly completes assignments on time and with care</li> <li>▪ uses time effectively</li> </ul> | <p><b>The student:</b></p> <ul style="list-style-type: none"> <li>▪ works willingly and cooperatively with others</li> <li>▪ listens attentively, without interrupting</li> <li>▪ takes responsibility for his/her share of the work to be done</li> <li>▪ helps to motivate others, encouraging them to participate</li> <li>▪ shows respect for the ideas and opinions of others</li> </ul> | <p><b>The student:</b></p> <ul style="list-style-type: none"> <li>▪ organizes work when faced with a number of tasks</li> <li>▪ devises and follows a coherent plan to complete a task</li> <li>▪ demonstrates ability to organize and manage information</li> <li>▪ follows an effective process for inquiry and research</li> </ul> | <p><b>The student:</b></p> <ul style="list-style-type: none"> <li>▪ completes homework on time and with care</li> <li>▪ follows directions</li> <li>▪ shows attention to detail</li> <li>▪ perseveres with complex projects that require sustained effort</li> <li>▪ applies effective study practices</li> </ul> | <p><b>The student:</b></p> <ul style="list-style-type: none"> <li>▪ seeks out new opportunities for learning</li> <li>▪ seeks necessary and additional information</li> <li>▪ requires little prompting to complete a task,</li> <li>▪ approaches new learning situations with confidence and a positive attitude</li> <li>▪ seeks assistance when needed</li> </ul> | <p><b>The student:</b></p> <ul style="list-style-type: none"> <li>▪ sets individual goals and monitors own progress</li> <li>▪ seeks clarification or assistance when needed</li> <li>▪ reflects and assesses critically own strengths, needs and interests</li> <li>▪ perseveres and makes an effort when responding to challenges</li> </ul> |

### **Additional Information:**

- Students are reminded to have a scientific calculator, graphing paper and other appropriate materials for the course.
- Additional help is available through your teacher.
- Access to the Ontario Educational Resource Bank ( OERB) is at <http://resources.elearningontario.ca/>  
The login for use by the Peel District School Board's students is  
Student Login: pdsbstudent  
Student Password: oerbs
- Visit <http://www.khanacademy.org/> for mini lessons on topics covered in class.
- Mathematics Contests for students in Grade 10:
  - CHAMP Contest
  - Cayley Contest : register during the first week in January; contest written in February.
  - Galois Contest : register during the first week in March; contest written in April.  
Visit [www.cemc.uwaterloo.ca](http://www.cemc.uwaterloo.ca) for additional details.

## **Clarkson S.S. Assessment & Evaluation Policy**

### **CHEATING:**

Students are expected to demonstrate **HONESTY** and integrity and submit assessments that are reflective of their own work. Cheating is defined as completing an assessment in a dishonest way through improper access to the answers. Examples include, but are not limited to; using another student's work as your own, using an unauthorized reference sheet during an assessment, receiving / sending an electronic message to another student with test questions / answers, etc.

In order to ensure that all assessments are free from cheating,

Students will:

- review school policy with regards to academic honesty
- submit their own work for evaluation to show evidence of skill and knowledge
- use only teacher approved materials during an evaluation
- demonstrate the qualities of good character and good intention (honesty, caring, respectful, responsibility,) when preparing evidence of their learning.

If a student cheats on an assessment,

Students may be:

- required to complete an alternate evaluation under direct supervision in a timely manner
- required to write a reflective piece which demonstrates an understanding of the character attribute of honesty.
- assigned a mark deduction
- referred to a vice-principal
- assigned a zero.

### **Plagiarism:**

Students are expected to demonstrate **HONESTY** and use proper citations and referencing when completing assessments. Plagiarism is defined as the unauthorized use or close imitation of the language and thoughts of another author and the representation of them as one's own original work. Examples include, but are not limited to; copying another's project (portions or whole) and paraphrasing parts of a book or article without reference or citation.

In order to ensure that all assessments are free from plagiarism,

Students will:

- Be required to complete a workshop in correct documentation
- produce their own work
- give credit through appropriate citations and referencing when quoting or paraphrasing the work of others
- be diligent in maintaining and protecting their own work
- seek clarification or assistance from teachers or other available resources

If an assessment is plagiarized,

Students may be:

- required to rewrite or resubmit all or parts of the assignment
- referred for remedial lessons on proper citation and references
- required to do a reflection on the character attribute of honesty
- referred to a vice-principal

- required to sign a contract with the administration and teacher about commitment to academic honesty
- assigned a zero.

**LATE ASSIGNMENTS – assignments submitted after the due date and before the absolute deadline.**

Students are expected to demonstrate **RESPONSIBILITY** and submit all assessments by the established due date. Students are responsible for providing evidence of their achievement of the overall course expectations within the time frame specified by the teacher and in a form approved by the teacher. There are consequences for not completing assignments for evaluation or for submitting those assignments late.

In order to ensure that all evaluations are submitted by the established due date,

Students will:

- record due dates in personal organizers
- consider other commitments including co-curricular activities in planning assignment completion
- negotiate alternate due date well before due date, not last minute (a minimum of 24 hours in advance or at teachers discretion)
- find out what they missed during absences
- use school support systems (i.e. special education, counselors, extra help, ...)

If an evaluation is submitted **after** the due date

Students :

- must notify the teacher and explain why the assignment was not submitted on the due date – in grades 9 & 10 a note from a parent/guardian may be required
- marks may be deducted for late assignments
- may be required to complete the assignment with supervision
- may be referred to a school based support team or a vice-principal
- may be placed on a contract for assignment completion

**MISSED ASSIGNMENTS – assignments either not submitted or submitted after the absolute deadline**

Excerpt from Policy 14.

In order to ensure that all evaluations are submitted,

Students will:

- be responsible for meeting and knowing absolute deadlines for missed assignments
- use personal organizers to manage time and meet deadlines
- be responsible for maintaining on- going communication with their teacher
- take responsibility for missed work during all absences

If an evaluation is submitted **after** the **absolute** deadline,

Students:

- must notify the teacher and explain why the assignment was not submitted
- students may be asked to provide a note from a parent/guardian
- may be required to complete the assignment or an alternate assignment under supervision
- may be referred to a school based support team or a vice-principal
- may be placed on a contract for assignment completion
- may be involved in an action plan to complete the required assignment within a given time frame
- may be assigned a zero.

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Grade 10 Academic

\_\_\_\_\_  
**Parent/Guardian Signature**

\_\_\_\_\_  
**Student Signature**

\_\_\_\_\_  
**Date**