

HAMILTON-WENTWORTH CATHOLIC DISTRICT SCHOOL BOARD

GRADE 10 Applied Mathematics – MFM 2P1

This course enables students to develop an understanding of linear relations and extend their problem solving and algebraic skills through investigation, the effective use of technology and hands-on activities. Students will develop and graph equations in analytic geometry; solve and apply linear systems, using real-life examples; and explore and interpret graphs of quadratic relations. Students will investigate similar triangles, the trigonometry of right triangles, and the measurement of three-dimensional figures. Students will consolidate their mathematical skills as they solve problems and communicate their thinking.

How This Course Supports The Ontario Catholic School Graduate Expectations

This course enables students to develop a confident and positive sense of self. Within the setting of a supportive and caring classroom community, the dignity and value of each student is respected and affirmed. Through their personal growth in reason, critical thinking and communication, students come to appreciate their mathematical ability as a God given gift. By sharing their abilities, students contribute to the good of others, in service to the classroom and school community.

Prerequisite: Completion of MFM 1P1 Mathematics Course

COURSE CONTENT

The following strands will be covered:

Strand 1: Measurement and Trigonometry

Strand 2: Modelling Linear Relations

Strand 3: Quadratic Relations of the Form $y = ax^2 + bx + c$

EVALUATION AND ASSESSMENT:

A) MARK CALCULATION

Knowledge/Understanding	25%
Application	25%
Communication	10%
Thinking	10%
Final Exam/Culminating	30%

B) LEARNING SKILLS

The following items will also be rated on the Provincial Report Card according to the codes listed below:

- Independent Work E= excellent
- Collaboration G = good
- Organization S = satisfactory
- Responsibility N = needs improvement
- Initiative
- Self-Regulation

TEXTBOOK

McGraw Hill-Ryerson– Foundations of Mathematics 10
Replacement Cost: \$101

MATHEMATICAL PROCESS EXPECTATIONS

The mathematical processes are to be integrated into student learning in all areas of this course.

Problem Solving

- develop, select, apply, and compare a variety of problem-solving strategies as they pose and solve problems and conduct investigations, to help deepen their mathematical understanding;

Reasoning and Proving

- develop and apply reasoning skills to make mathematical conjectures, assess conjectures and justify conclusions, and plan and construct organized mathematical arguments;

Reflecting

- demonstrate that they are reflecting on and monitoring their thinking to help clarify their understanding as they complete an investigation or solve a problem

Selecting Tools and Computational Strategies

- select and use a variety of concrete, visual, and electronic learning tools and appropriate computational strategies to investigate mathematical ideas and to solve problems;

Connecting

- make connections among mathematical concepts and procedures and relate mathematical ideas to situations or phenomena drawn from other contexts

Representing

- create a variety of representations of mathematical ideas connect and compare them, and select and apply the appropriate representations to solve problems;

Communicating

- communicate mathematical thinking orally, visually, and in writing, using mathematical vocabulary and a variety of appropriate representations, and observing mathematical conventions.

OVERALL EXPECTATIONS:

Measurement and Trigonometry

- 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 trigonometric ratios and the Pythagorean Theorem;
- solve problems involving the surface area and volumes of three-dimensional figures, and use the imperial and metric systems of measurement.

Linear Relations

- manipulate and solve algebraic equations, as needed to solve problems;
- graph a line and write the equation of a line from given information;
- solve systems of two linear equations, and solve related problems that arise from realistic situations.

Quadratic Relations of the Form $y = ax^2 + bx + c$

- manipulate algebraic expressions, as needed to understand quadratic relations;
- identify characteristics of quadratic relations;
- solve problems by interpreting graphs of quadratic relations.