



Cameron Heights Collegiate Institute

Charles Street E., Kitchener, Ontario N2G 2P8 (519)-578-8330 www.chci.wrdsb.on.ca

Subject	Grade	Level	Code	Prerequisite
Mathematics	12	University	MHF4UI	11 University

Course Description:

This course extends students' experience with functions. Students will investigate the properties of polynomial, rational, logarithmic, and trigonometric functions; develop techniques for combining functions; broaden their understanding of rates of change; and develop facility in applying these concepts and skills. Students will also refine their use of the mathematical processes necessary for success in senior mathematics. This course is intended both for students taking the Calculus and Vectors course (MCV 4UI) as a prerequisite for a university program, and for those wishing to consolidate their understanding of mathematics before proceeding to any one of a variety of university programs.

Ministry Website

<http://www.edu.gov.on.ca/eng/curriculum/secondary/math1112currb.pdf>

Unit of Study	Overall Expectations (essential understandings)	Assessment	
70%	Characteristics of Polynomial Functions	<ul style="list-style-type: none"> Identify and describe some key features of polynomial functions, and make connections between the numeric, graphical and algebraic representations of polynomial functions Demonstrate an understanding of average and instantaneous rate of change, and determine numerically and graphically. Interpret the average rate of change of a function over a given interval and the instantaneous rate of change of a function at a given point 	<ul style="list-style-type: none"> A variety of formative assessments in the form of quizzes and assignments (~1%) Summative unit test (~9%)
	Polynomial Functions	<ul style="list-style-type: none"> Factor polynomials and graph them in factored form Solve problems involving polynomial equations graphically and algebraically Demonstrate an understanding of solving polynomial inequalities 	<ul style="list-style-type: none"> A variety of formative assessments in the form of quizzes and assignments (~1%) Summative unit test (~9%)
	Rational Functions	<ul style="list-style-type: none"> Identify and describe some key features of the graphs of rational functions, and represent rational functions graphically Solve problems involving simple rational equations graphically and algebraically Demonstrate an understanding of solving simple rational inequalities 	<ul style="list-style-type: none"> A variety of formative assessments in the form of quizzes and assignments (~1%) Summative unit test (~9%)
	Exponential and Logarithmic Functions	<ul style="list-style-type: none"> Demonstrate an understanding of the relationship between the exponential expressions and logarithmic expressions, evaluate logarithms, and apply the laws of logarithms to simplify numeric expressions Identify and describe some key features of the graphs of logarithmic functions, make connections among the numeric, graphical and algebraic representations of logarithmic functions, and solve related problems graphically Solve exponential and simple logarithmic equations in one variable algebraically, including those in problems arising from real-world applications 	<ul style="list-style-type: none"> A variety of formative assessments in the form of quizzes and assignments (~1%) Summative unit test (~9%)
	Trigonometric Functions	<ul style="list-style-type: none"> Demonstrate an understanding of the meaning and application of radian measure Make connections between trigonometric ratios and the graphical and algebraic representations of the corresponding trigonometric functions and between trigonometric functions and their reciprocals, and use the connections to solve problems 	<ul style="list-style-type: none"> A variety of formative assessments in the form of quizzes and assignments (~1%) Summative unit test (~9%)
	Trigonometric Identities and Equations	<ul style="list-style-type: none"> Solve problems involving trigonometric equations and prove trigonometric identities 	<ul style="list-style-type: none"> A variety of formative assessments in the form of quizzes and assignments (~1%) Summative unit test (~9%)
	Characteristics of Functions	<ul style="list-style-type: none"> Determine functions that result from the addition, subtraction, multiplication and division of two functions and from the composition of two functions, describe some properties of the resulting functions, and solve related problems Compare the characteristics of functions, and solve problems by modelling and reasoning with functions, including problems with solutions that are not accessible by standard algebraic techniques 	<ul style="list-style-type: none"> A variety of formative assessments in the form of quizzes and assignments (~1%) Summative evaluation (~9%)
30%	Final Exam	<ul style="list-style-type: none"> Will include all of the overall expectations listed within the units of study 	<ul style="list-style-type: none"> Summative Final Exam (30%)