

Dear Parents,

Helping kids understand and apply mathematics knowledge and skills is a collective responsibility of parents, teachers, and principals.

Students need to learn mathematics in a way that will serve them throughout their lives. Understanding mathematics can provide our students with many job and career opportunities.

This is why students need to know why mathematics works the way it does, how to use it with confidence and competence when solving problems.

Understanding mathematics enables us to:

- Solve problems, make sound decisions and perform calculations with ease
- Explain how we solved a problem and why we made a particular decision
- Understand patterns and trends so that we can make predictions
- Understand Financial Literacy to manage time and money
- Handle everyday situations that involve numbers and feel confident

Before your child can learn mathematics, he or she needs to believe in his or her ability to do so. That's where you come in!

Parents, you are your child's first role model for learning. When you engage with your child in a supportive, relaxed atmosphere, your child will enjoy exploring the world of mathematics.

Dynamic Math is committed to helping parents and students. We understand that not everyone learns the same way, and not everyone feels the same about math. This is why we are continually working to create math resources that help students of all abilities, while supporting the many learning styles and varying levels of enthusiasm towards math.

From our clear concise instructions and straightforward guided examples to our additional practice material and tests, there's something to suit everyone. Combined with our video tutorials, students will be able to get a tutor-like experience from anywhere and at a fraction of the cost of standard tutoring or after-school help programs.

## Table of Contents

### Mathematics 12 – Pre-Calculus

	Page		Page
<b>Unit 1 – Transformations</b>		<b>Unit 5 – Trigonometric Angles and Graphs</b>	
1.1 Relations and Functions	2	5.1 Angle and Degree Measure	163
1.2 Transformational Geometry	10	5.2 Angles in Standard Position	167
Review of Linear and Quadratic Functions	19	5.3 Special Angles	178
1.3 Vertical and Horizontal Translations	23	5.4 Graphs of Trigonometric Functions	184
1.4 Compressions and Expansions	29	5.5 Transformations of Trigonometric Functions	190
1.5 Reflections and Inverses	38	<i>Curricular Competencies</i>	202
<i>Curricular Competencies</i>	49	<i>Aboriginal Applications</i>	203
<i>Aboriginal Applications</i>	50		
<b>Unit 2 – Polynomial Functions and Equations</b>		<b>Unit 6 – Trigonometric Equations and Identities</b>	
2.1 Division of Polynomials	54	6.1 Basic Trigonometric Identities	209
2.2 Remainder Theorem	60	6.2 Sum and Difference Identities	215
Factoring – A Brief Review	64	6.3 Double Angle Identities	218
2.3 Zero-Product Property	69	6.4 Basic Trigonometric Equations	221
2.4 Factor Theorem	74	6.5 Applications of Trigonometric Equations	227
2.5 Rational and Number of Roots Theorems	78	<i>Curricular Competencies</i>	232
2.6 Function Model	81		
2.7 Polynomial Functions	84	<b>Unit 7 – Exponents and Logarithms</b>	
2.8 Solving Polynomial Inequalities	92	7.1 Review of Exponents	236
2.9 Using a Graphing Calculator	96	7.2 Exponential Functions	240
<i>Curricular Competencies</i>	102	7.3 Logarithmic Functions	244
<i>Aboriginal Applications</i>	103	7.4 Properties of Logarithms	255
		7.5 Solving Exponential and Logarithmic Equations	259
<b>Unit 3 – Rational and Radical Functions</b>		7.6 Solving Exponential and Logarithmic Identities	263
3.1 Radical Functions	108	7.7 Application Problems and Exponents and Logarithms	265
3.2 Radical Equations	117	Questions without a Calculator	273
3.3 Asymptotes and Point Discontinuities	120	<i>Curricular Competencies</i>	278
3.4 Rational Functions	124	<i>Aboriginal Applications</i>	279
3.5 Rational Equations	130		
<i>Curricular Competencies</i>	134	<b>Unit 8 – Geometric Sequences and Series</b>	
		8.1 Geometric Sequences	284
<b>Unit 4 – Composite Functions and Operations</b>		8.2 Geometric Series	288
4.1 Addition and Subtraction of Functions	138	8.3 Sums of Infinite Geometric Series	293
4.2 Multiplication and Division of Functions	142	<i>Curricular Competencies</i>	297
4.3 Composite Functions	146	<i>Aboriginal Applications</i>	298
4.4 Using a Graphing Calculator to Graph Operations with Functions	149		
4.5 Using a Graphing Calculator to Graph Composite Functions	154	<b>Answers to Exercises and Unit Tests</b>	<b>302</b>
<i>Curricular Competencies</i>	158		