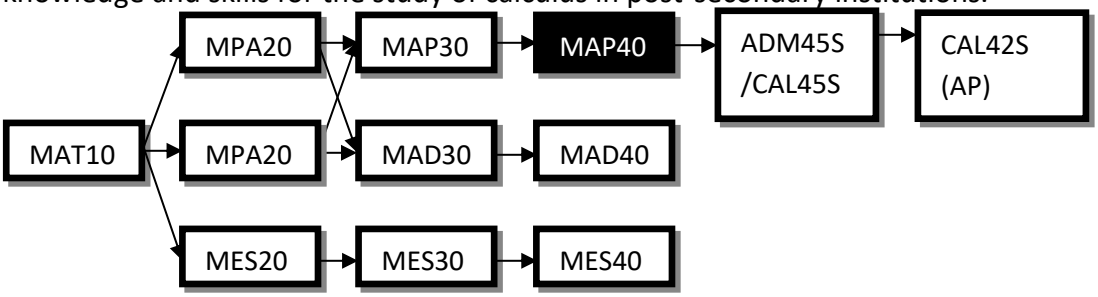
CROCUS PLAINS REGIONAL SECONDARY SCHOOL
COURSE OUTLINE AND ASSESSMENT GUIDE

Course Name: Pre-Calculus 40S (MAP40S)

Teacher's Name(s): Mr. C. McLachlan

Contact Information: mclachlan.chris@bsd.ca

Course Description: Grade 12 Pre-Calculus Mathematics is designed for students who intend to study calculus and related mathematics as part of post-secondary education. It builds on the topics studied in Grade 11 Pre-Calculus Mathematics and provides background knowledge and skills for the study of calculus in post-secondary institutions.



All students require at least one mathematics credit at each grade level for graduation. The pathways shown are recommended, but there are different options.

Text/Other Resources: Pre-Calculus 12 (McGraw-Hill Ryerson)
and Grade 12 Pre-Calculus Cumulative Exercises
Scientific or Graphing Calculator
Graph Paper

Units of Study

Unit Title	Learning Outcomes *It is expected that students will:*	Assessment Plan	Proposed Time
Trigonometry and the Unit Circle	12P.T.1. Demonstrate an understanding of angles in standard position, expressed in degrees and radians. [C, CN, ME, R, V] 12P.T.2. Develop and apply the equation of the unit circle. [CN, R, V] 12P.T.3. Solve problems, using the six trigonometric ratios for angles expressed in radians and degrees. [C, ME, PS, R, T, V] 12P.T.4. Graph and analyze the trigonometric functions sine, cosine	Formative Assessment Mental Math, Text Exercises, Observation, and Participation Summative Assessment Tests, Assessment Activities	12 days

	and tangent to solve problems. [C, CN, PS, T, V]		
Transformations	12P.R.1. Demonstrate an understanding of operations on, and compositions of, functions. [CN, R, T, V] 12P.R.2. Demonstrate an understanding of the effects of horizontal and vertical translations on the graphs of functions and their related equations. [C, CN, R, V] 12P.R.3. Demonstrate an understanding of the effects of horizontal and vertical compressions and stretches on the graphs of functions and their related equations. [C, CN, R, V] 12P.R.4. Apply translations, compressions and stretches to the graphs and equations of functions. [C, CN, R, V] 12P.R.5. Demonstrate an understanding of the effects of reflections on the graphs of functions and their related equations, including reflections through the: • x-axis • y-axis • line y = x. [C, CN, R, V]	<u>Formative Assessment</u> Mental Math, Text Exercises, Observation, and Participation <u>Summative Assessment</u> Tests, Assessment Activities	11 days
Trigonometric Equations and Identities	12P.T.3. Solve problems, using the six trigonometric ratios for angles expressed in radians and degrees. [C, ME, PS, R, T, V] 12P.T.5. Solve, algebraically and graphically, first and second degree trigonometric equations with the domain expressed in degrees and radians. [C, CN, PS, R, T, V]	<u>Formative Assessment</u> Mental Math, Text Exercises, Observation, and Participation <u>Summative Assessment</u>	12 days

	12P.T.6. Prove trigonometric identities, using: • reciprocal identities • quotient identities • Pythagorean identities • sum or difference identities (restricted to sine, cosine and tangent) • double-angle identities (restricted to sine, cosine and tangent). [C, R, T, V]	Tests, Assessment Activities	
Radicals and Inverses	12P.R.6. Demonstrate an understanding of inverses of relations. [C, CN, R, V] 12P.R.13. Graph and analyze radical functions (limited to functions involving one radical). [C, CN, R, T, V]	<u>Formative Assessment</u> Mental Math, Text Exercises, Observation, and Participation <u>Summative Assessment</u> Tests, Assessment Activities	7 days
Polynomials	12P.R.11. Demonstrate an understanding of factoring polynomials of degree greater than 2 (limited to polynomials of degree 5 with integral coefficients). [C, CN, ME] 12P.R.12. Graph and analyze polynomial functions (limited to polynomial functions of degree). [C, CN, PS, T, V]	<u>Formative Assessment</u> Mental Math, Text Exercises, Observation, and Participation <u>Summative Assessment</u> Tests, Assessment Activities	10 days
Rational Functions and Function Operations	12P.R.1. Demonstrate an understanding of operations on, and compositions of, functions. [CN, R, T, V] 12P.R.14. Graph and analyze rational functions (limited to	<u>Formative Assessment</u> Mental Math, Text Exercises, Observation, and Participation	10 days

	numerators and denominators that are monomials, binomials or trinomials). [C, CN, R, T, V]	Summative Assessment Tests, Assessment Activities	
Exponents and Logarithms	12P.R.7. Demonstrate an understanding of logarithms. [C, CN, ME, R] 12P.R.8. Demonstrate an understanding of the product, quotient and power laws of logarithms. [C, CN, R, T] 12P.R.9. Graph and analyze exponential and logarithmic functions. [C, CN, T, V] 12P.R.10. Solve problems that involve exponential and logarithmic equations. [C, CN, PS, R]	Formative Assessment Mental Math, Text Exercises, Observation, and Participation Summative Assessment Tests, Assessment Activities	12 days
The Binomial Theorem	12P.P.1. Apply the fundamental counting principle to solve problems. [C, CN, PS, R, V] 12P.P.2. Determine the number of permutations of n elements taken r at a time to solve problems. [C, PS, R, V] 12P.P.3. Determine the number of combinations of n different elements taken r at a time to solve problems. [C, PS, R, V] 12P.P.4. Expand powers of a binomial in a variety of ways, including using the binomial theorem (restricted to exponents that are natural numbers). [C, CN, R, V]	Formative Assessment Mental Math, Text Exercises, Observation, and Participation Summative Assessment Tests, Assessment Activities	10 days
Processes: C – Communication PS – Problem Solving V – Visualization	CN – Connections R – Reasoning T – Technology	ME – Mental Mathematics and Estimation	

Assessment Guidelines

There are various purposes for assessment:

- Assessment *for* learning **(formative assessment)**: where assessment helps teachers gain insight into what students understand in order to plan and guide instruction, and provide helpful feedback to students.
- Assessment *of* learning **(summative assessment)**: where assessment informs students, teachers and parents, as well as the broader educational community, of achievement at a certain point in time in order to celebrate success, plan interventions and support continued progress.

Academic Achievement

Grades will be calculated on summative assessment information only. The final calculation will be a fair reflection of a student's achievement of the learning outcomes.

Term Work 80%

- **Tests.....65%**
- **Assessment Activities 15%**

Final Assessment 20%

- **Provincial Exam .....20% Semester 1: January 22, 2026**
  Semester 2: June 9, 2026

Learning Behaviours

Assessment and reporting of learning behaviors will be according to the Brandon School Division Learning Behaviors Rubric.

Unit/Term Summative Assessment – Due Dates

All assessments and/or evaluations will be assigned a reasonable completion date. If absent, students are responsible for getting notes, completing assignments, and making arrangements for tests to be written during their own time. **The opportunity to write a test that has been missed will be made provided the absence was excused.**