HIGH SCHOOL MATHEMATICS PATHWAYS

GRADE 9

GRADE 9
Successful completion of Grade 9.

If NRF 10 is offered in both semesters, students may choose to start with NRF 10. Students may choose to take NRF 10 online.

GRADE 10

Geometry, Measurement and Finance 10

Does student focus include relations and functions, logical reasoning and trigonometry?
YES

Does student focus include statistics, measurement and project-based or applied mathematics?
YES

Number, Relations and Functions 10

Does student focus include statistics, measurement and project-based or applied mathematics?
YES

Does student focus include relations and functions, logical reasoning and trigonometry?
YES

Does student focus include calculus?
YES

GRADE 11

Financial and Workplace Mathematics 110

Does student focus now include relations and functions, logical reasoning and trigonometry? (A student can change pathways by completing NRF 10).
NO

YES

Foundations of Mathematics 110

Does student focus include permutations, combinations and binomial theorem, limits and calculus?
NO

YES

Pre-Calculus 110

GRADE 12

Financial and Workplace Mathematics 120

Foundations of Mathematics 120

Pre-Calculus A 120

Pre-Calculus B 120

Does student focus include calculus?
YES

Calculus 120

Does student focus include project-based or applications in math in skilled trades or work-ready contexts?
YES

NBCC Skilled Trades and Work Ready Math 120

HIGH SCHOOL MATHEMATICS PATHWAYS

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GRADE 10

Geometry, Measurement and Finance 10 EN/FR

Length: One semester

Prerequisite: *Mathematics 9*

Topics: Pythagorean Theorem; polygons; angles; trigonometric ratios; metric and imperial systems of measurement; surface area and volume; unit pricing; currency exchange; income (gross and net pay); credit cards; loans; and interest

Number, Relations and Functions 10 EN/FR

Length: One semester

Prerequisite: *Mathematics 9*

Topics: prime factors; common factors; square and cube roots; irrational numbers; integral and rational exponents; polynomial expressions; trinomial factoring; linear relations and functions; slope; distance formula; and midpoint formula

FINANCIAL AND WORKPLACE MATHEMATICS

This pathway is organized for students who plan to take post-secondary programs that require applied mathematics or who plan to enter the workforce directly after high school.

FOUNDATIONS OF MATHEMATICS

This pathway is organized for students who plan to take post-secondary academic programs that do not require calculus.

PRE-CALCULUS

This pathway is organized for students who plan to take post-secondary programs that require calculus.

GRADE 11

Financial and Workplace Mathematics 110 EN/FR

Length: One semester

Prerequisite: *Geometry, Measurement, and Finance 10*

Topics: right triangles; trigonometry; scale models and drawings; numerical reasoning; renting and buying; investment portfolios; personal budgets; application of formulas; slope; and proportional reasoning

Foundations of Mathematics 110 EN/FR

Length: One semester

Prerequisites: *Number, Relations, and Functions 10* **and** *Geometry, Measurement, and Finance 10*

Topics: numerical and logical reasoning; angles and triangles; sine and cosine laws; systems of linear inequalities; quadratic functions; renting and buying; and investment portfolios

Pre-Calculus 110 EN/FR

Length: One semester

Pre or Co-requisite: *Foundations of Mathematics 110*

Topics: absolute value functions; radical expressions and equations; rational expressions and equations; angles and trigonometric ratios (0°–360°); polynomial factoring; systems of equations; quadratic functions and equations; and linear and quadratic inequalities

GRADE 12

Financial and Workplace Mathematics 120

Length: One semester

Prerequisites: *Financial and Workplace Mathematics 110* **or** *Foundations of Mathematics 110*

Topics: measuring; sine and cosine laws; properties of polygons; transformations of 2-D and 3-D shapes; small business finance; linear relationships; data interpretation; and probability

Foundations of Mathematics 120

Length: One semester

Prerequisite: *Foundations of Mathematics 110*

Topics: normal distribution; standard deviation; confidence intervals; set theory; conditional statements; probability; binomial theorem; and polynomial, exponential, logarithmic and sinusoidal functions

Pre-Calculus A 120 EN/FR

Length: One semester

Prerequisite: *Pre-Calculus 110*

Topics: graphs of functions and related equations; inverse, radical, exponential and logarithmic functions; angles in standard position in degrees and radians; unit circle; trigonometric ratios and sine, cosine and tangent equations to solve problems; and trigonometric identities

Note: Most post-secondary programs that require Pre-Calculus A 120 **also** require Pre-Calculus B 120

NBCC Skilled Trades and Work Ready 120

Length: One semester

Prerequisite: *Geometry, Measurement, and Finance 10*

Topics (in a skilled trade and/or work-ready context): whole numbers; fractions; decimals; percent; ratio and proportion, integers; scientific notation; metric system; and measurement

Note: This course is intended for learners entering an NBCC program in the next academic year. Any remaining seats may be filled at the school's discretion.

Pre-Calculus B 120

Length: One semester

Pre or Co-requisite: *Pre-Calculus A 120*

Topics: arithmetic and geometric sequences and series; polynomial factoring and functions; reciprocal and rational functions; function toolkit permutations; combinations and binomial theorem; and limits and continuity of functions

Calculus 120

Length: One semester

Prerequisites: *Pre-Calculus A 120* **and** *Pre-Calculus B 120*

Topics: graphs of functions and related equations; inverse, radical, exponential and logarithmic functions; angles in standard position in degrees and radians; unit circle; trigonometric ratios and sine, cosine and tangent equations to solve problems; and trigonometric identities

EN/FR = ENGLISH/FRENCH

Available online