



Mathematics 20-2

Teacher Contact Info:

Room 1243	Mr. M. Deo	madev@cbe.ab.ca
Room 1244	Mr. M. Steele	mlsteele@cbe.ab.ca
Room 1246	Mr. A. Ziendien	alziendien@cbe.ab.ca

Course Description and Objectives:

Mathematics is one way of understanding, interpreting and describing our world. It has application in the sciences, economics, business, engineering, medicine, the trades and daily life just to name a few areas. The main goals of mathematics education are to prepare students to:

- Solve problems, communicate and reason mathematically
- Make connections between mathematics and its applications
- Become mathematically literate and appreciate and value mathematics

Students who have met these goals will have gained an understanding and appreciation of the role of mathematics in society, exhibit a positive attitude toward mathematics and engage with and persevere in mathematical problem solving. In order to assist students in attaining these goals, teachers will provide opportunities for students to take risks, think independently, share and communicate their mathematical understanding and exhibit curiosity about mathematics and the disciplines broader applications to the real world.

In Mathematics 20-2, students will investigate inductive and deductive reasoning, properties of angles and triangles, trigonometry, radicals, quadratic function and equations and proportional reasoning. The goal of Math 20-2 is to prepare students for diverse post-secondary programs in health, arts, business and technologies that do not require calculus.

Course Assessment:

Outcomes

The specific outcomes from the Alberta Education Mathematics Grades 10 – 12 Program of Studies will account for 80% of each student's school awarded grade. The other 20% will come from a Final Exam. These outcomes (and the associated competencies) will be assessed using the Proficiency Scale Assessment Rubric. Teachers may use a variety of assessments including quizzes, assignments, projects, exams, and one-on-one conversations to provide multiple opportunities for students to demonstrate their understanding of each of the specific outcomes.

Online Information:

Over the course of the 2023-2024 school year, Nelson Mandela High School teachers will maintain an online course presence containing materials, resources, assignments and supports through our D2L environment. It is important for students to take an active role in their learning and stay current in their schoolwork if away for any reason.

Outcomes		
CBE Outcome	Description	Percentage
<i>Measurement</i>		
M1. Rates	Solve problems that involve the application of rates.	5%
M2. Proportional Reasoning	Solve problems that involve scale diagrams, using proportional reasoning	5%
M3. Scale Factor	Demonstrate an understanding of the relationships among scale factors, areas, surface areas and volumes of similar 2-D shapes and 3-D objects	5%
<i>Geometry</i>		
G1. Triangle Proofs	Derive proofs that involve the properties of angles and triangles	5%
G2. Triangle Properties	Solve problems that involve properties of angles and triangles	5%
G3. Sine and Cosine Laws	Solve problems that involve the cosine law and the sine law, excluding the ambiguous case	10%
<i>Number and Logic</i>		
AN1. Conjectures	Analyze and prove conjectures, using inductive and deductive reasoning, to solve problems	5%
AN2. Puzzles and Games	Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies	3%
AN3. Radical Operations	Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands (limited to square roots)	5%
AN4. Radical Equations	Solve problems that involve radical equations (limited to square roots or cube roots)	5%
<i>Statistics</i>		
S1. Normal distribution	Demonstrate an understanding of normal distribution, including: standard deviation, z-scores	10%
S2. Interpret Statistical Data	Interpret statistical data, using: confidence intervals, confidence levels, margin of error	5%
<i>Relations and Functions</i>		
RF1. Quadratic Functions	Demonstrate an understanding of the characteristics of quadratic functions, including: vertex, intercepts, domain and range, axis of symmetry.	12%
RF2. Quadratic Equations	Solve problems that involve quadratic equations	10%
<i>Research Project</i>		
MRP1. Research Project	Research and give a presentation on a historical event or an area of interest that involves mathematics	10%

Note that the order of the outcomes listed above does not correspond to the order in which the topics will be taught in class. For more detailed information about the specific outcomes from the Mathematics Program of Studies, please follow the link: [Math 20-2 Program of Studies](#)

Course Materials and Resources:

Students will have access to the Principles of Mathematics textbook online and will require lined and graph paper, pencils, and erasers. Students will also **require** an approved graphing calculator. We recommend the Texas Instruments TI-83+ or 84 and classroom instruction will be given for **this model only**. *Please check with your teacher for more information.*

Plagiarism

When ideas are taken from other sources without giving credit, this is known as plagiarism. Plagiarism is the unacknowledged or unauthorized use of somebody else's words or ideas, **including AI-generated material**. We expect our students to act with academic integrity, and to use their own knowledge to demonstrate authentic learning. Student honesty and ethical behaviour is foundational to their schoolwork and in how they handle challenges. Our teachers support students' authentic and ethical learning through teaching when and how to cite resources.

When To Give Credit in Your Work

- When you are using or referring to somebody else's words or ideas from a magazine, book, newspaper, song, TV program, movie, web page, computer program, letter, advertisement, AI application or any other source.
- When you use information gained through interviewing another person.
- When you copy the exact words from somewhere.
- When you reprint any diagrams, illustrations, charts, and pictures.

Don't Need to Give Credit

- When you are writing your own experiences, your own observations, your own insights, your own thoughts, your own conclusions about a subject.
- When you are using common knowledge, common sense observations, or shared information.
- When you are using generally accepted facts.
- When you are writing up your own experimental results.

Academic Expectations

Students are expected to behave according to the CBE [Student Code of Conduct](#). Students who knowingly misrepresent the work of others as their own, or allow their work to be copied, act outside of the parameters of academic integrity. If this happens, we use [Progressive Student Discipline](#) so that teachers, parents, and school leaders can help students take responsibility for their learning to achieve their academic goals.

(<https://school.cbe.ab.ca/school/cbe-learn/teaching-learning/program-approach/academic-integrity/Pages/default.aspx>)