

Math 20-2: Principles of Mathematics 11

Peace River High School 2015-2016 (Semester 2)

Instructor: Mrs. Lori Knoblauch

knoblalo@prsd.ab.ca

Welcome to Math 20-2!

General Outcomes

(As per Alberta Program of Studies)

Upon completion of this course, students are expected to:

- Develop spatial sense and proportional reasoning
- Develop number sense and logical reasoning
- Develop statistical reasoning
- Develop algebraic and graphical reasoning through the study of relations
- Develop an appreciation of the role of mathematics in society

Course Materials

- ◆ Textbook: *Principles of Mathematics 11, Nelson*
- ◆ One binder for the course
- ◆ Notes and worksheets handed out in the class
- ◆ Graphing calculator; every student is asked to buy a **Texas Instrument TI-83+ Graphing Calculator**. This is the calculator that will be used for demonstrations and exercises
- ◆ Binder with lined paper & 0.5 cm. graphing paper
- ◆ Geometry Set, including a ruler
- ◆ Pencils and erasers as well as pens

General Expectations; Requirements for Success in Math 20-2

Be actively involved in the process of learning mathematics, both inside and outside of the class room!

- **Attendance** is one of the most important factors for academic success. Remember that math is cumulative. If you miss class you will miss important material that will be used in later sections. **All notes, handouts and assignments missed due to absence are your responsibility.** Please make arrangements with your teacher or with a classmate to obtain materials.
- It is expected that you come to class every day **on time, prepared** with the materials you require for class.
- Should you miss a test due to an excused absence, you may write the test in class on your first day back. A note from your parents and/or guardians excusing the absence will be required.

- **Listen attentively** to instruction and be sure to **ask questions** to clarify concepts. Chances are you are not the only one who doesn't understand. Listen when others ask questions; listen to both the question and the answer. It may be that the student asking the question thought of something that you didn't think of.
- Class time will frequently be given to work on assignments. It is expected that you will stay **on task** during these times. Mature and considerate behavior is expected in class. **Respect** for one another, for your teacher, and for the classroom is essential.
- All exercises and assignment are due at the beginning of class; on or before the due date.
- **Music & iPods:** *Okay sometimes....*
 - During independent seat work, you are welcome to listen to music.
 - You may NOT listen to music during instructional time or during any quiz, test, or exam.
 - This is a **privilege** and can be easily removed.
- A daily demonstration of a willingness to participate in class activities and exercises, attending regularly, and showing a consistent, conscientious effort towards the course material will increase your chance of success in this course! ***You are here to do the best you can!***
- **Practice, Practice, Practice!** Practice as much as possible. The only way to really learn how to do problems is to work lots of them.

“Whether you think you can or think you cannot, you are right!”

Course Content

Number and logic:

- ❖ Analyze and prove conjectures, using inductive and deductive reasoning, to solve problems.
- ❖ Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies.
- ❖ Solve problems that involve operations on radicals and radical expressions with numerical and variable radicands (limited to square roots)
- ❖ Solve problems that involve radical equations (limited to square roots or cube roots)

Geometry:

- ❖ Derive proofs that involve the properties of angles and triangles.
- ❖ Solve problems that involve properties of angles and triangles.
- ❖ Solve problems that involve the Cosine law and the Sine law, excluding the ambiguous case.

Relations and Functions:

- ❖ Demonstrate an understanding of the characteristics of quadratic functions, including
 - Vertex
 - Intercepts
 - Domain and Range
 - Axis of Symmetry
- ❖ Solve problems that involve quadratic equations

Measurement:

- ❖ Solve problems that involve the applications of rates.
- ❖ Solve problems that involve scale diagrams, using proportional reasoning
- ❖ Demonstrate an understanding of the relationships among scale factors, areas, surface areas and volumes of similar 2-D shapes and 3-D objects.

Statistics:

- ❖ Demonstrate an understanding of normal distribution, including:
 - Standard deviation
 - Z-Scores
- ❖ Interpret statistical data, using
 - confidence intervals
 - confidence levels
 - margin of error

Course Schedule

As per the Alberta Education 20-2 curriculum, five strands will be addressed in the course. The following chart provides an outline of when they will be addressed.

Strand	Chapter(s)	Tentative Timeline
Number and Logic	Chapter 1: Inductive and Deductive Reasoning	Feb 01 - Feb 17
	Chapter 4: Radicals	Feb 18 - March 02
Geometry	Chapter 2: Properties of Angles and Triangles	March 08 - March 24
	Chapter 3: Acute Triangle Trigonometry	April 05 - April 15
Relations and Functions	Chapter 6: Quadratic Functions	April 18 - April 29 th
	Chapter 7: Quadratic Equations	May 02 - May 18
Measurement	Chapter 8: Proportional Reasoning	May 24 - June 03
Statistics	Chapter 5: Statistical Reasoning	June 06 - June 15

Review: Last few days of the course, depending on time.

Note: The above dates are a rough estimate of the timeline. It may change according to the needs of the class.

Assessment & Evaluation

Evaluation Per Unit		Course Evaluation	
Outcome-based quizzes and assignments	60%	Number and Logic	15%
		Geometry	15%
		Relations and Functions	15%
Chapter Tests	40%	Measurement	7.5%
		Statistics	7.5%
		Midterm	5%
		Final Exam	35%
		Total	100%

Teaching Methodology

Students will begin class each day with "bell work" that could include review of prior lessons or knowledge, a Math puzzle or trivia question. The purpose of bell work is to help keep the student academically engaged from bell to bell.

Students will be taught through a variety of different instructional methods including: direct teaching, cooperative learning, independent learning, as well as small and large group discovery-based activities.

Technological means including the use of a Smart board, online tools, and interactive response systems may be used when and where appropriate.

Students will have opportunity in class to engage in practice exercises of the material taught each day. Should the textbook practice assignments not be completed in class, the expectation is that they are completed for homework.

Quizzes and Assignments: Each chapter consists of various learning outcomes. Achievement indicators will be used to determine whether students have met the corresponding specific outcomes. Quizzes are always completed in class. Assignments will be given in class and may be completed for homework.

Chapter Tests: These will occur at the completion of each chapter.

Midterm and Final Exams: The midterm will take place April 8th during our regularly scheduled B block class and will cover material learned up until this point. The final exam will take place during the scheduled final exam week in January and will cover material from the entire course.

Extra Help: Be sure to ask questions to clarify concepts. Please do not hesitate to make an appointment with your teacher to obtain any extra help you may need throughout the course.

References

<http://www.education.alberta.ca/teachers/program/math.aspx>

Principles of Mathematics 11, Nelson Education, Canada



Parents/Guardians:

Please take the time to review your child's course outline. If you have any questions or concerns, please feel free to contact me at knoblalo@prsd.ab.ca Thank you.

If you wish to provide me with your email address, I can contact you if I have any questions/concerns about your child.

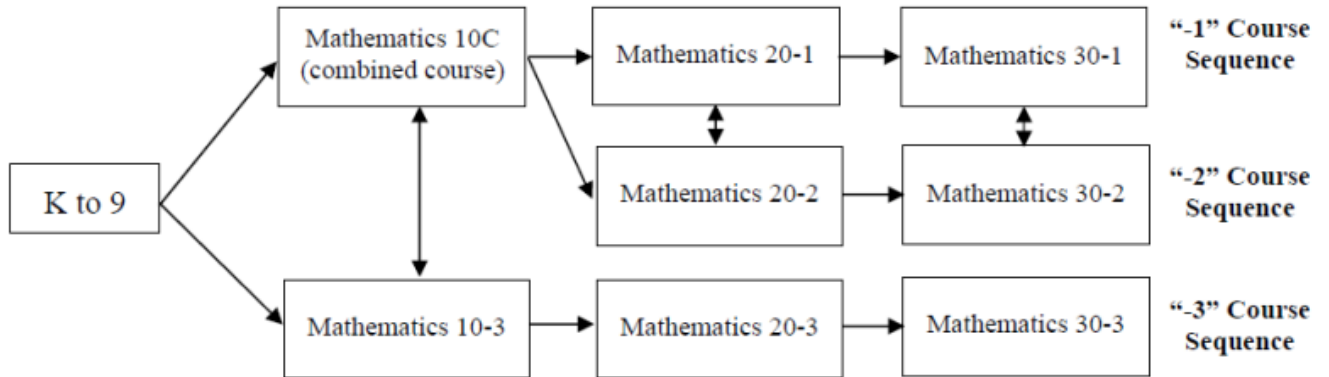
Student's Name: _____

Parent/Guardian name(s): _____

Parent/Guardian Email: _____

Where do we go from here?

The new 10-12 curriculum is laid out in the following sequence:



"-1" Course Sequence

This course sequence is designed to provide students with the mathematical understandings and critical thinking skills identified for entry into postsecondary programs that require the study of calculus. Topics include algebra and number; measurement; relations and functions; trigonometry; and permutations, combinations and binomial theorem.

"-2" Course Sequence

This course sequence is designed to provide students with the mathematical understandings and critical thinking skills identified for post-secondary studies in programs that do not require the study of calculus. Topics include geometry, measurement, number and logic, logical reasoning, relations and functions, statistics, and probability.

"-3" Course Sequence

This course sequence is designed to provide students with the mathematical understandings and critical thinking skills identified for entry into the majority of trades and for direct entry into the work force. Topics include algebra, geometry, measurement, number, statistics and probability.