

MATH 20-2A, Mathematics 20-2

5 credits, 6 hours lecture

Topics covered include right angle trigonometry; applications involving rates and ratios (scale relationships of 2D and 3D shapes); manipulation and application of formulas; apply the power laws on integral and rational exponents; evaluate absolute values; perform all operations (addition, subtraction, multiplication, division) on radicals; solve radical equations; graph and apply quadratic functions; solve quadratic equations; spatial reasoning. Extensions to the material may include a Business Prep module involving the interpretation and analysis of statistical data and the utilization of inductive and deductive reasoning to prove conjectures and a Trades prep module for further exploration of 3D objects (model, draw, describe scale diagrams, etc.) and the creation and interpretation of circle and line graphs.

Alberta Education Course Equivalency: MATH 20-2

Prerequisites: MATH 10, MATH 13, MATH 10-C, or permission from the Program Chair

Instructor: Tracy Boger

Office: S213F

Phone: 780 791-4833

Email: tracy.boger@keyano.ca

Office Hours

By appointment.

Hours of Instruction

Monday 8:00 – 9:50

Tuesday 8:00 – 9:50

Thursday 8:00 – 9:50

Required Resources

Textbook: Principles of Mathematics 11: Alberta (Nelson)

Other supplies: TI83 or TI84 plus calculator & graphing paper

Course Outcomes

Upon successful completion of the course, the student shall be able to:

- Solve problems that involve the application 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.
- 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.
- 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).
- Demonstrate an understanding of the characteristics of quadratic functions, including
 - vertex
 - intercepts
 - domain and range
 - axis of symmetry
- Solve problems that involve quadratic equations.

Evaluation

Assignments	28%
Tests	30%
Quizzes	12%
Attendance/Participation	5%
Final Exam	25%

Grading System

The minimum pre-requisite for progression is 60% (refer to Grading System below)

Descriptor	4.0 Scale	Percent
Excellent	4.0	96 – 100
	4.0	90 – 95
	3.7	85 – 89
Good	3.3	81 – 84
	3.0	77 – 80
	2.7	73 – 76
Satisfactory	2.3	69 – 72
	2.0	65 – 68
Minimum Prerequisite	1.7	60 – 64
Poor	1.3	55 – 59
Minimum Pass	1.0	50 – 54
Failure	0.0	0 – 49

Proposed Schedule of Topics

Please Note: Date and time allotted to each topic is subject to change.

Time allotted	Topic
2 weeks	Chapter 5: Statistics
2 weeks	Chapter 2: Properties of Angles & Triangles
1.5 weeks	Chapter 3: Acute Triangle Trigonometry
2 weeks	Chapter 4: Radicals
2 weeks	Chapter 6: Quadratic Functions
1.5 weeks	Chapter 7: Quadratic Equations
1.5 weeks	Chapter 8: Proportional Reasoning

A detailed schedule with assignment due dates is available in Moodle

Course Policies and Procedures

Assignments. Assignments will consist of end-of-unit homework assignments and in-class textbook exercises. Daily in-class textbook practice will be graded for completion every Monday. Check the course schedule for homework assignment due dates.

Assignment Submission. All assignments must be submitted via the Moodle assignment drop box as a single PDF file (submit only one file per assignment). If you need help formatting your assignment, make an appointment with the college's educational support specialist (located in the library).

Participation Marks. Participation marks will be awarded based on the completion of daily textbook practice assignments. Textbook practice assignments will be submitted every Monday via the Moodle dropbox. Simply attending class does not secure full participation marks.

Late assignments. Students will lose 10% each day that an assignment is late until the fourth day. On day 5 the late assignment be REFUSED. Returned late assignments may have minimal feedback. If written feedback is important to you make sure that you submit assignments on time. If you are unable to meet assignment deadlines contact your instructor 24 hours prior to the due date. Requests for extensions after the due date will not be considered unless there are extenuating circumstances

Midterm Exam. A missed exam may be written at an alternate time only under certain exceptional circumstances and *at the instructor's discretion*. The instructor should be contacted within 24 hours of the scheduled exam, and acceptable documentation (e.g. a doctor's note) must be provided.

Final Exam. The final exam schedule and policy is available on the Keyano College website. It is your responsibility to be familiar with final exam policy. Final exams must be written on the date scheduled by the College. If there are extenuating circumstances the procedure for "Deferred Final Examination" in the Credit Calendar is to be followed.

Please avoid scheduling appointments during class time. Assignments and exams will not be excused or omitted due to missing class for personal appointments. This includes routine medical appointments, volunteer or work commitments, and college related appointments. However, if you have extenuating circumstances, contact your instructor.

Electronic Devices. Students should only engage in the use of personal laptop computers, tablets or iPads, and/or cellphones for course related purposes. The use of these devices for anything that is not course related is prohibited. Cellphones and tablets are strictly prohibited during quizzes and exams.

Make-up assignments and Extra Credit will NOT be given in this course.

Performance Requirements and Student Services

Student Responsibilities. As a student, it is your responsibility to contact the Office of the Registrar to complete the required forms, including the Withdraw Course or Program or a Change of Registration form. Please refer to the important dates listed in the Academic Schedule in the [Keyano College credit calendar](#). The Keyano College credit calendar also has information about Student Rights and the Code of Conduct. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and the Code of Conduct Policies.

Student Attendance. Class attendance is helpful for two reasons: First, class attendance maximizes a student's learning experience. Second, attending class is an excellent way to keep informed of matters relating to the course administration (e.g., the timing of assignments and exams). Ultimately, you are responsible for your learning and performance in this course. It is the responsibility of each student to be prepared for all classes. Absent students are responsible for the material covered in those classes, and students must ensure they are ready for their next class, including completing any missed assignments and notes.

Academic Misconduct. Students are considered responsible adults and should adhere to the principles of intellectual integrity. Intellectual dishonesty takes many forms:

- Plagiarism or the submission of another person's work as their own,
- The use of unauthorized aids in assignments or examinations (cheating),
- Collusion or the unauthorized collaboration with others in preparing work,
- The deliberate misrepresentation of qualifications,
- The willful distortion of results or data,
- Substitution in an examination by another person,
- Submitting unchanged work for another assignment, and
- Breach of confidentiality.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the Student Rights and Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Code of Conduct Policies. To ensure your understanding of plagiarism, you may be required to complete the online [Understanding Plagiarism tutorial](#) and submit the certificate of completion.

COVID-19 We are subject to provincial, and municipal bylaws, and policies. These decisions may change pending further direction from the Alberta Chief Medical Officer, Alberta Health Services, and other provincial guidelines. To protect yourself and others, get immunized, wash your hands, wear a mask, keep your distance (2m/6 ft) and remain home when feeling unwell. For the most recent COVID-19 information, please refer to albertahealthservices.ca/COVID.

Online Learning. This is a face to face course. If we are required to move to online learning due to COVID, technology and internet connectivity will impact your online learning experience. You may be required to watch online videos, take online quizzes, or participate in live online classes. Live/virtual courses will be hosted in Microsoft Teams or Zoom. For all course delivery types, you will access your course resources on Keyano's learning management system: Moodle (iLearn). Login in using your [Keyano username and password](#). Keyano College operates in a Windows-based environment and having access to the correct tools for online learning is essential. Here's a list of recommended system requirements.

Internet Speed. Minimum download and upload speeds of 10 Mbps. Recommended download speeds of 25 Mbps and upload speeds of 10 Mbps (if you are sharing your internet at home). You can check your internet speed with [Speedtest by Ookla](#).

Specific Department Requirements. Business and OA programs require Windows 10. Other programs may utilize Windows-based tools as well.

Computer Software. Students have access to Microsoft Office 365 and Read&Write for free using Keyano credentials.

Recording of Lectures and Intellectual Property. Students may only record a lecture if explicit permission is provided by the instructor or Accessibility Services. Even if students have permission to record a lecture or lecture materials, students may not share, distribute, or publish any of the lectures or course materials; this includes any recordings, slides, instructor notes, etc., on any platform. Thus, no student is allowed to share, distribute, publish or sell course-related content without permission. It is important to recognize that the Canadian Copyright Act contains provisions for intellectual property. The [Academic Integrity Policy](#) provides additional information on Keyano College's expectations from students as members of the intellectual community.

ITS Helpdesk. If you have issues with your student account, you can contact the ITS Helpdesk by emailing its.helpdesk@keyano.ca or calling 780-791-4965.

Computer System Requirements

Microsoft Windows	Apple (Mac)
<p>Minimum Requirements:</p> <ol style="list-style-type: none"> 1. Windows 10 Operating System or above 2. 4GB of RAM 3. 10GB available hard drive storage space <ol style="list-style-type: none"> a. Install the Microsoft Office 365 suite (~3GB) * 4. Microphone, webcam, and speakers (All modern laptops have these three accessories built-in.) 5. Windows has built-in anti-virus/malware software. It is essential to install system updates to keep your device secured regularly. <p>*Microsoft Office 365 is free to Keyano students.</p>	<p>Minimum Requirements:</p> <ol style="list-style-type: none"> 1. Mac Operating System 10.14 (Monterey) or above 2. 4GB of RAM 3. 10GB available hard drive storage space <ol style="list-style-type: none"> a. Install the Microsoft Office 365 suite (~3GB) * 4. Microphone, webcam, and speakers (All modern laptops have these three accessories built-in.) 5. Mac has built-in anti-virus/malware software. It is important to install system updates to keep your device secured regularly. <p>*Microsoft office 365 is free to Keyano students.</p>
<p>Recommended Upgrades</p> <ul style="list-style-type: none"> • 8GB of RAM • Regularly back up or synchronize your files, locally or with a cloud-based storage option. <p>OneDrive is the cloud-based storage option free to students after the setup of KeyanoMail and Microsoft 365.</p>	<p>Recommended Upgrades</p> <ul style="list-style-type: none"> • 8GB of RAM • Regularly back up or synchronize your files locally or with a cloud-based storage option. <p>OneDrive is the cloud-based storage option free to students after the setup of KeyanoMail and Microsoft 365.</p>
<p>Tablets, iPads, and Chromebooks are not recommended: they may not be compatible with the testing lockdown browsers and Microsoft Office 365.</p>	

Specialized Supports The Student Services Department is committed to Keyano students and their academic success. There is a variety of student support available at Keyano. All student services are available during Keyano business hours: Monday to Friday, 8:30 a.m. to 4:30 p.m. The College is closed on statutory holidays. If you require support outside of regular business hours, please inform the support service team, and they will do their best to accommodate your needs.

Accessibility Services provides accommodations for students living with disabilities. Students with documented disabilities or who suspect a disability can meet with an Access Strategist to discuss their current learning barriers and possible accommodations. Students who have accessed accommodations in the past are encouraged to contact the department to request accommodations for the following semester. Please note that requesting accommodations is a process and requires time to arrange. Contact the department as soon as you know you may require accommodations. For accessibility supports and disability-based funding, please book an appointment by emailing us at: accessibility.services@keyano.ca.

Accessibility Services also provides individual and group learning strategy instruction for all students and technology training and support to enhance learning. You can meet with an Access Strategist to learn studying and test-taking strategies. In addition, you can schedule an appointment with the Assistive Technology Specialist to explore technology tools for learning. Book an appointment today by emailing: accessibility.services@keyano.ca

Wellness Services offers a caring, inclusive, and respectful environment where students can access free group and individual support to meet academic and life challenges. Mental Health Coordinators provide a safe and confidential environment for you to seek help with personal concerns. Our Wellness Navigator offers support with basic needs such as housing, financial and nutritional support, and outside referrals when needed. Wellness Services welcomes students to participate in group sessions that address topics including mindfulness and test anxiety throughout the academic year. Individual appointments can be made by emailing wellness.services@keyano.ca.

Library Services: provides students with research, information, and education technology supports as they engage in their studies. Library staff are available to help you online and in person throughout the semester. Librarians offer individual and small group appointments booked using the online [Book A Librarian calendar](#). The Library also provides research and subject guides to help you with your studies. To view a subject or course-specific guide, check out the complete list of online [Subject Guides](#). To start your research and access citation guides (APA, MLA, Chicago, or IEEE), visit the [Research Help page](#). The Library's collections (including print and online materials) are searchable using [OneSearch](#). The Library offers a Loanable Technology collection to support students accessing and using technology. For an up-to-date list of technology available for borrowing, visit the Library's [Loanable Technology webpage](#). For a detailed list of library resources and services, go to www.keyano.ca/library. For all inquiries, please email askthelibrary@keyano.ca or [chat with us online](#).

Academic Success Centre: The Academic Success Centre at Keyano College (CC-119) provides **free** academic support services to registered students, such as tutoring, writing support, facilitated study groups, workshops, and study space. Academic Content Specialists are available in Mathematics, Science, Trades, Power Engineering, Upgrading/College Prep, Human Services, English, Humanities, and more. Students are encouraged to visit the Academic Success Centre to discuss study strategies and academic concerns. For additional information, please email Academic.Success@keyano.ca.

Academic Success Coach: The Academic Success Coach is located in the Academic Success Centre and works with students to develop academic success plans, time management skills, study strategies, and homework plans. For additional information, please email Academic.Success@keyano.ca.