



MATH 1120 Trigonometry **Spring 2019**

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3rd Period

Introduction:

This course is a Riverland Community College course taught concurrently with your Hayfield High School class. You will earn college credits and your grade help build your college transcript. You will also be earning high school credit and grade concurrently.

Course Description

This course builds on the computational, problem solving, and graphing skills learned in previous math courses. The topics covered in this course include trigonometric ratios, functions, graphs, identities, equations, inverse trigonometric functions, solution of the general triangle and other applications, conic sections, polar coordinates, and complex numbers. (4 Credits - 4 lecture, 0 lab).

*MnTC Discipline: Mathematical/Logical Reasoning **Core Theme: Critical Thinking

Required Texts/Materials/Supplies:

Precalculus with Limits: A Graphing Approach Fourth (4th) Edition

By Ron Larson, Bruce H. Edwards, Robert Hostetler

- **Hardcover:** 1083 pages

Publisher: Houghton Mifflin Company; 5 edition (March 8, 2007)

- **Language:** English
- **ISBN-10:** 0618851526
- **ISBN-13:** 978-0618851522

Additional Supplemental Materials provided

Graphing Calculator Application - Desmos

College-Wide Learning Outcomes:

Quantitative Reasoning

- Students can reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations.
- Students can understand, analyze, create, and communicate arguments supported by quantitative evidence.
- Students can understand and apply basic analytic-mathematical operations into make logical inferences from quantitative data.

Course-Specific Learning Outcomes:

Upon successful completion of MATH 1120, students will demonstrate knowledge of:

1. Introduction to trigonometric functions
 - a. Angle measure
 - b. Right triangle trigonometry
 - c. Unit circle
2. Trigonometric graphs and models
 - a. Graphs of all six trigonometric functions
 - i. Transformations and applications of trigonometric graphs
 - ii. Mathematical modeling
 - b. Trigonometric identities
 - i. Fundamental identities
 - ii. Constructing and verifying identities
 - iii. Sum and difference identities
 - iv. Double-angle, half-angle, and product-to-sum identities
 - c. Inverse trigonometric functions and equations
 - i. Inverse trigonometric functions and applications
 - ii. Graphing inverse trigonometric functions
 - iii. Solving trigonometric equations
 - d. Applications of trigonometry

- i. Oblique triangles
 - ii. Law of sines
 - iii. Law of cosines
- e. Vectors
 - i. Complex numbers
 - ii. De Moivre's Theorem
- f. Conic Sections and Polar Coordinates
 - i. Circles
 - ii. Ellipses
 - iii. Hyperbolas
 - iv. Polar coordinates, equations, and graphs

Course Purpose/Objectives (MN Transfer Curriculum/General Education Goal Area):

<u>GOAL</u>	<u>OBJECTIVES</u> Students will be able to	<u>OUTCOMES</u> The student will successfully
<u>MnTC Goal 4a</u>	illustrate historical and contemporary applications of mathematical/logical systems.	1. apply algorithms to contemporary problems and compare these to similar historical problems.
<u>MnTC Goal 4c</u>	explain what constitutes a valid mathematical/logical argument (proof).	1. use properties of trigonometric functions to prove trigonometric identities.
<u>MnTC Goal 4d</u>	apply higher-order problem solving and/or modeling strategies.	1. use modeling strategies to solve applied problems.
<u>MnTC Goal 2a</u>	gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.	1. analyze models created and determine which would be the most applicable to the situation.
<u>MnTC Goal 2b</u>	imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings or solutions to the given situations or problems.	1. use alternate methods to prove the same trigonometric identities.
<u>MnTC Goal 2c</u>	analyze the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim; generate and evaluate implications that follow from them.	1. list the assumptions and limitations needed to accept a mathematical model.
<u>CS</u>	recognize, graph, and analyze trigonometric functions.	1. demonstrate mastery of solving equations.
<u>CS</u>	solve trigonometric equations.	1. demonstrate mastery of graphing.
<u>CS</u>	verify trigonometric identities.	1. demonstrate mastery of graph evaluation.

<u>CS</u>	use trigonometric functions to solve problems.	1. demonstrate mastery of a graphing calculator.
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Grading Criteria/Course Evaluation:

100-94%	A	83-80%	B-	69-67%	D+
93-90%	A-	79-77%	C+	66-64%	D
89-87%	B+	76-74%	C	63-60%	D-
86-84%	B	73-70%	C-	59-0%	F

90% Summative Assessment

Unit Assessments: On assessments, partial credit will be awarded for any work done correctly.

Semester Assessments: Partial credit will be awarded for any work done correctly.

Projects: Projects will be completed periodically.

10% Formative Assessment

Quizzes: Quizzes will be given periodically each chapter to formally assess your progress and provide feedback to enhance learning.

Homework: Homework will be given nightly and **due** the next class period. Homework for the chapter will approximately be the value of a quiz.

- You will receive a total of 2 points credit if:
 - You legitimately attempt **every** problem – 1 Point
 - You show legitimate effort and show all work in pencil - 1 Point
- You will **not** receive credit if:
 - Problems are left out, work not shown, little or no effort

Student Requirements:

1. Be on time to class.
2. Come to class prepared with all required materials.
3. During class discussion, respect your peers and teacher by listening while others are talking. Please raise your hand to speak when appropriate.
4. Be a responsible student and a positive participant in class.
5. Respect your classmates and give them your attention because they probably have the same questions as you.

Making up Work

- It is the student's responsibility to check for missed assignments/quizzes/tests.
- Quizzes/Tests must be made up within one week.
- Homework must be made up before the unit is completed.
- Please consult the Moodle to find out what you missed

Extra Help:

Students are encouraged to come in for extra help during my planning period, 4th. I plan to be in my room by 7:30 daily to assist students, but I will also need a few minutes of that time to get things ready for the day's lessons. Please come and visit if you are having any problems. If these times don't work well, please feel free to ask other math teachers, consult the internet, or set up an appointment with me if you have questions.

ADA Statement:

Upon request, this information will be made available in alternative formats such as braille, large print, or audio by calling 507-433-0600 (TDD 800-627-3529).

Academic Integrity Statement:

Academic integrity is essential to a positive teaching and learning environment. In addition to Hayfield Community Schools District Policy 506, students enrolled in a RivCEP course are expected to complete course work responsibilities with fairness and honesty. Failure to do so by seeking unfair advantage over others or misrepresenting someone else's work as their own will result in disciplinary action. The Student Code of Conduct defines Cheating: Includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, assessments, or examinations; (2) use of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (3) the acquisition, without permission, of tests or other academic material belonging to a member of the faculty or staff; (4) engaging in any behavior specifically prohibited by a faculty member in the course syllabus or class discussion. Plagiarism: Includes, but is not limited to, the use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials. For the complete Student Code of Conduct, visit <http://www.riverland.edu/policies/Student-CodeConduct.cfm>

Affirmative Action Statement:

Riverland Community College is an equal opportunity employer and educator.
<http://www.riverland.edu/policy/Equal-Opportunity-Nondiscrimination-Policy-1000.pdf>

Emergency Procedures:

Contact the Hayfield High School office and/or email your instructor: jsnider@hayfield.k12.mn.us

If you have a disability and need accommodations to participate in this course, please contact your instructor as soon as possible. Course requirements and schedule are subject to change at the instructor's discretion.