

**Southwest MN Christian High School
Applied Mathematics - 11th Grade**

- I. **Southwest Mission Statement:** To challenge students to grow in knowing, loving, and serving God and others.
- II. **Course Description:** An integrated study of mathematics involving Algebra, Geometry, Trigonometry and Statistics with real world application. Students are challenged to engage the study of mathematics in order to better understand and appreciate the beauty and complexity in God's creation.
- III. **Mr. John Top, jtop@swmch.org**
- IV. **Instruction Philosophy:** Students will be guided to engage material with a mindset of experimentation to learn of God's creation. Instruction will involve foundational material in each lesson, alongside a display of problem-solving processes. Students will then engage the material for the purpose of mastery, along with the challenge to apply basic principles to real world application.

We will cover the lesson and work through problems together as a class. I will give you an adequate number of problems for you to practice the material for the day. You will then correct your own paper the following day, and you will hand in the corrected paper, which I will score. Scores will be given based on effort, correctness, and class participation.

- V. **Assessment Philosophy:** Assessment will follow the process of exploration and mastery, allowing students to display knowledge gained throughout the unit. Students will be offered differentiated levels of difficulty for assessment, with the intent to allow students to test within their skill and knowledge set, while having a system of formal assessment that is consistent for the class. Assessments will then be returned to the student for correction and mastery, emphasizing a continued pursuit for understanding the order of God's creation.

Assessments will be the way in which you show me that you've mastered the material. Daily work will be graded and scored, but daily work is essentially the way for you to practice the material in order to do well on the tests. We will do our best to test frequently in order to master the material in small increments.

- VI. **Items needed**
 - 1. Pencil (all work must be done in pencil), Eraser
 - 2. Protractor w/ linear measurement
 - 3. Calculator
 - 4. Pen : non-black (to correct daily work)
 - 5. Notebook Paper
 - 6. Textbook

VII. Course Standards/Goals

Area 1 Mathematic Foundations

(Chapters 1 & 2 in Math Matters - Book 3)

- identify and graph real numbers
- add, subtract, multiply & divide real numbers with an understanding of operation order
- apply the properties of exponents to evaluate and simplify expressions
- apply the properties of roots/radicals
- evaluate variable expressions w/ negative exponents
- write numbers using scientific notations
- identify/evaluate functions (linear, absolute value), including domains & ranges
- solve one step and multi-step equations
- construct frequency tables and determine mean, median, and mode.
- construct stem & leaf plots and histograms for data.

Area 2 Polynomials

(Chapter 11 in Math III)

- write polynomials in standard form
- add, subtract, multiply polynomials & monomials
- analyze polynomials to find factor pairs, GCF, LCM to divide monomials
- factor polynomials into a monomial factor and polynomial factor
- multiply binomials
- factor polynomials by grouping
- factor trinomials and perfect square trinomials including $Ax^2 + Bx + C$

Area 3 Rates, Ratios, Proportions, Percents, (Increase/Decrease), Probability

(Algebra 1 Worksheets, Chapter 7 in Math III)

- measurements and their conversions
- *ratios and proportions*
- *similar figures*
- *scale drawings and maps*
- *probability*
 - *independent events*
 - *compound events*
 - *permutations*
 - *combinations*

Area 4 Triangles and Polygons

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(Chapter 4 in Math III, aided by Geometry Worksheets)

- *equilateral, isosceles, scalene*
- *acute, obtuse, right, equiangular*
- *triangle sum theorem*
- *exterior angle theorem*
- *congruence in triangles*
- *triangle inequality theorem*
- *polygon sum theorem*
- *special quadrilaterals*

Area 5 Surface Area and Volume of 3D Shapes

(Chapter 5 in Math III, aided by Geometry Worksheets)

- *surface area and probability*
- *figures in space, terms*
- *prisms*
- *pyramids*
- *cylinders*
- *cones*
- *spheres*

Area 6 Slope and Systems of Equations

Chapter 6 in Math III, aided by Algebra Worksheets)

- *slope of a line*
- *slope intercept form for equations*
- *parallel and perpendicular lines*
- *systems of equations*
- *solving systems using substitution, elimination, adding, subtracting & multiplying*

Area 7 Trigonometry/Triangles

Outside Worksheets, Geometry

- *similar triangles*
- *special right triangles*
 - *30,60,90*
 - *45,45,90*
- *trigonometric ratios*
 - *sine, cosine, tangent (inverse)*

Area 8 Circles

Math III Chapter 10, Outside Worksheets

- *equations for circles*
- *central angles*
- *inscribed angles*

- secants
- tangents
- chords
- diameter
- radii

VIII. Grading Components

Quarter

Daily Work	40 %
Assessment	60 %

Semester

Quarter 1	40 %
Quarter 2	40 %
Final Exam	20 %

Grading Scale

A	100-97
A-	96-93
B+	92-88
B	87-84
B-	83-80

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C+ 79-77

C 76-74

C- 73-70

D+ 69-67

D 66-64

D- 63-60

F 59-0