DELAWARE VALLEY SCHOOL DISTRICT

PLANNED INSTRUCTION

A PLANNED COURSE FOR:

Algebra 2 & Trigonometry
_____

Grade Level: 10, 11, 12

Date of Board Approval: _____2018_____

DELAWARE VALLEY SCHOOL DISTRICT

Planned Instruction

Title of Planned Instruction: Algebra 2 & Trigonometry

Subject Area: Mathematics   **Grade(s): 10, 11, 12**

Course Description: This academic course for college bound students typically follows Geometry with students previously completing Algebra 1. Topics introduced in Algebra 1 such as linear functions, systems of equations, quadratic functions, and polynomials will be extended and applied. More advanced topics include exponential, logarithmic and trigonometric functions.

Time/Credit for the Course: 2 SEMESTERS, 1 CREDIT, 180 days, meeting 1 period per day

Curriculum Writing Committee: Jenelle Gunderman, Susan West

Gradebook Policy for Algebra 2 and Trigonometry

Marking Periods	Quiz	Test	Homework/ Participation	CRQ/GA	Total
MP1 points	100	300	25	75	500
MP2 points	120	200	20	60	400
MP3 points	120	200	20	60	400
MP4 points	100	300 (with final)	25	75	500
Total points	440	1000	90	270	1800
Total Percentages	**24%**	**56%**	**5%**	**15%**	**100%**

Curriculum Map

1. **Marking Period One: Data Analysis, Linear Functions and Systems of Equations**

   Overview (Goals) based on 45 days:
   Understanding of:
   - Analyzing data using mean, median, and mode
   - Data distributions involving qualitative and quantitative data
   - Standard deviation
   - Properties of real numbers
   - Solving equations and inequalities in one variable
   - Solving absolute value equations and inequalities in one variable
   - Linear functions (graphically and algebraically)
   - Applications of linear models
   - Absolute value functions
   - Solving systems of equations algebraically and graphically
   - Solving and graphing systems of inequalities

2. **Marking Period Two: Relations, Functions and Quadratic Functions, Introduction to Polynomials**

   Overview (Goals) based on 45 days:
   Understanding of:
   - Relations and functions
   - Transformations of functions
   - Graphs of quadratic functions
   - Translating quadratic functions
   - Solving quadratic equations by factoring, graphing, completing the square, and/or quadratic formula
   - Real and complex roots of quadratic functions
   - Quadratic applications
   - Operations with polynomials

3. **Marking Period Three: Polynomial Functions, Inverses and Radical Functions, Exponential and Logarithmic Functions**

   Overview (Goals) based on 45 days:
   Understanding of:
   - Real and complex roots of polynomial functions
   - Evaluating and writing composite functions
   - Roots and radical expressions
   - Operations on radical expressions
   - Rational exponents
   - Solving radical equations
   - Function operations
   - Inverse relations and functions
   - Exponential and logarithmic models with applications
   - Properties of logarithms
   - Graphs of logarithmic functions and exponential functions
   - Solving exponential and logarithmic equations
   - Natural logarithms

4. **Marking Period Four: Rational Functions and Trigonometric Functions**

   Overview (Goals) based on 45 days:
   Understanding of:
   - Simplifying rational expressions
   - Operations on rational expressions
   - Solving rational equations
   - Exploring periodic data
   - Measuring angles in radians and degrees
   - Trigonometric functions and the Unit Circle

Curriculum Plan

Unit 1: Data Analysis, Linear Functions and Systems of Equations   **Marking Period**: 1

Standard(s):
PACS Math: CC.2.4.HS.B.1, CC.2.4.HS.B.2, CC.2.4.HS.B.3, CC.2.4.HS.B.4, CC.2.4.HS.B.5, CC2.1.HS.F.2, CC2.1.HS.F.3, CC2.1.HS.F.4, CC2.2.HS.C.1, CC2.2.HS.C.2, CC2.2.HS.C.3, CC2.2.HS.C.4, CC2.2.HS.C.5, CC2.2.HS.C.6, CC2.2.HS.D.1, CC2.2.HS.D.2, CC2.2.HS.D.7, CC2.2.HS.D.8, CC2.2.HS.D.9, CC2.2.HS.D.10
http://static.pdesas.org/content/documents/PA%20Core%20Standards%20Mathematics%20PreK-12%20March%202014.pdf

Anchor(s): A2.1.1.2, A2.1.2.1, A2.1.3.2.2, A2.2.1.1, A2.2.1.1.1, A2.2.1.1.3, A2.2.3.1, A2.2.3.1.1, A2.2.3.1.2
http://www.education.pa.gov/Documents/K-12/Assessment%20and%20Accountability/Keystone%20Exams/Keystone%20Exams%20AA-EC%20woSample%20Items/Keystone%20Content%20Module%20Standard%20Blueprint--Algebra%20II.pdf

Big Idea #1: Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.

   Essential Questions:
   - In what ways are the mathematical attributes of objects or processes measured, calculated and/or interpreted?
   - How does the type of data influence the choice of display?
   - How can data be organized and represented to provide insight into the relationship between quantities?

   Concepts:
   - Data

   Competencies:
   - Summarize, represent, and interpret single-variable data (including standard deviation) and two-variable data.
   - Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.

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Big Idea #2: Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.

Essential Questions:
- How can expressions, equations and inequalities be used to quantify, solve, model, and/or analyze mathematical situations?

Concepts:
- Equations and Inequalities

Competencies:
- Create and/or solve equations (including literal, polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically.
- Use and/or explain reasoning while solving equations, and justify the solution method.

Overview: Data Analysis, Tools of Algebra Introductory Unit, Linear Equations and Systems

Goals: Students will be able to analyze data in various forms, comparing types of graphical representations as well as applying statistical measures of center and spread. Students will be able to write and solve equations or inequalities using their understanding of operations with and properties of real numbers. Students will apply these skills to solve real-world problems. Students will be able to represent and describe linear functions in order to model real world situations. They will use this knowledge to solve a system of linear equations algebraically or graphically as well as solve a system of linear inequalities graphically.

Objectives:
1. Students will be able to choose an appropriate graphical representation for a given data set. (DOK – Level One)
2. Students will be able to interpret information from a given representation of data in context. (DOK – Level Two)
3. Students will be able to analyze and interpret numerical data distributions represented with frequency tables, histograms, dot plots, and box plots. (DOK – Level Four)
4. Students will be able to calculate, compare, and interpret mean, median, and range for quantitative variables. Interpret, but don't calculate standard deviation. (DOK – Level Two)
5. Students will be able to compare distributions using measures of center and spread, including distributions with different means and the same standard deviations with ones with the same mean and different standard deviations. (DOK – Level Two)

6. Students will be able to understand and describe the effect of outliers on mean and median. (DOK – Level Three)
7. Students will be able to calculate the mean given an appropriate data set. (DOK – Level One)
8. Students will be able to use sample mean and sample proportion to estimate population mean and population proportion. Utilize, but don't calculate margin of error. (DOK – Level Four)
9. Students will be able to interpret margin of error; understand that larger sample sizes generally lead to a smaller margin error. (DOK – Level Two)
10. Students will be able to describe which population the results can be extended to when using random samples. (DOK – Level Three)
11. Students will be able to determine if there is evidence for a causal relationship. (DOK – Level Two)
12. Students will be able to understand why a random assignment provides evidence for a causal relationship. (DOK – Level Two)
13. Students will be able to understand why a result can be extended only to the population from which the sample was selected. (DOK – Level Four)
14. Students will be able to identify and apply properties of real numbers. (DOK – Level Two, DOK – Level Four)
15. Students will be able to evaluate and/or simplify algebraic expressions by applying the order of operations. (DOK – Level Three)
16. Students will be able to solve equations and inequalities with one variable and graph solutions on a number line. (DOK – Level Two)
17. Students will be able to write and solve compound inequalities, absolute value equations and inequalities as well as graph solutions on a number line. (DOK – Level Two)
18. Students will be able to write and graph linear functions in slope-intercept form, point-slope form, and standard form. (DOK – Level Two)
19. Students will be able to graph linear inequalities. (DOK – Level Two)
20. Students will be able to write and solve linear equations that model real-world data. (DOK – Level Three)
21. Students will be able to write an equation of a trend line and line of best fit as well as use the trend line or line of best fit to make predictions. (DOK – Level Four)
22. Students will be able to solve a system of linear equations by graphing, using substitution, or using the elimination method. (DOK – Level Two)
23. Students will be able to apply their understanding of systems of equations to solve real world problems. (DOK – Level Four)

24. Students will be able to solve a system of linear inequalities by graphing and model real world situations using a system of linear inequalities. (DOK – Level Three)

Core Activities and Corresponding Instructional Methods:

1. Construct and interpret graphical displays of distributions of univariate data, either categorical or quantifiable, summarize distributions of univariate data, compare distributions of univariate data, and analyze center and spread.
   a. Direct instruction as needed using Smart Technology and online textbook and resources
   b. Guided practice
   c. Cooperative learning groups

2. Develop students' ability to analyze characteristics of a population based upon random sampling. Interpret the margin of error. Apply knowledge of random sampling to determine if there is evidence of a causal relationship.
   a. Direct instruction as needed using Smart Technology and online textbook and resources
   b. Guided practice
   c. Cooperative learning groups

3. Expose students' prior knowledge of properties of real numbers, as well as other Algebra 1 skills (simplifying and/or evaluating algebraic expressions, solving equations, inequalities, including absolute value functions).
   a. Diagnostic assessment, questioning
   b. Direct instruction as needed using Smart Technology and online textbook and resources
   c. Guided practice
   d. Cooperative learning groups

4. Develop students' skills in solving absolute value equations and inequalities, compound inequalities and solving problems by applying algebraic processes.
   a. Direct instruction using Smart Technology and online textbook and resources.
   b. Guided practice
   c. Cooperative learning groups

5. Expose students' prior knowledge of graphing linear functions and writing equations of lines in slope-intercept form, point-slope form, and standard form, including the line of best fit.
    a. Diagnostic assessment, questioning
    b. Cooperative learning groups
    c. Direct instruction as needed using Smart Technology and online textbook and resources
    d. Guided practice

6. Develop students' skills in solving a system of linear equations both graphically and algebraically as well as a system of linear inequalities (graphically).
    a. Direct instruction using Smart Technology and online textbook and resources.
    b. Guided practice
    c. Cooperative learning groups

7. Develop students' ability to solve real world problems by applying their understanding of linear functions, systems of linear equations and inequalities.
    a. Guided practice
    b. Cooperative learning groups

Assessments:

Diagnostic:
Glencoe Algebra 2 Support File
Teacher prepared pre-test/diagnostic test
Teacher questioning and observation
Keystone Algebra I exam

Formative:
Teacher observations, questions, discussions
Homework
Teacher prepared assessments (quizzes and chapter tests)

Summative:
Common Assessment for Unit 1

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Unit 2: Relations, Functions and Quadratics Functions   **Marking Period: 2**
       Introduction to Polynomials

Standard(s):
PACCS Math: CC2.1.HS.F.3, CC2.1.HS.F.4, CC2.1.HS.F.6, CC2.1.HS.F.7, CC2.2.HS.C.2, CC2.2.HS.C.3, CC2.2.HS.C.4, CC2.2.HS.C.5, CC2.2.HS.C.6, CC2.2.HS.D.1, CC2.2.HS.D.2, CC2.2.HS.D.7
http://static.pdesas.org/content/documents/PA%20Core%20Standards%20Mathematics%20PreK-12%20March%202014.pdf

Anchor(s): A2.1.1.1.1, A2.1.1.1.2, A2.1.1.2.1, A2.1.1.2.2, A2.1.2.2.1, A2.1.3.1.1, A2.1.3.2.2, A2.2.1.1.4, A2.2.2.1.1, A2.2.2.1.1, A2.2.2.1.3, A2.2.2.1.4, A2.2.2.2.1
http://www.education.pa.gov/Documents/K-12/Assessment%20and%20Accountability/Keystone%20Exams/Keystone%20Exams%20AA-EC%20woSample%20Items/Keystone%20Content%20Module%20Standard%20Blueprint--Algebra%20II.pdf

Big Idea #1: Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.

> **Essential Questions:**
> * How are relationships represented mathematically?
> * How can patterns be used to describe relationships in mathematical situations?
>
> **Concepts:**
> * Functions
>
> **Competencies:**
> * Use the concept and notation of function to interpret and apply them in terms of their context.
> * Interpret functions in terms of the situations they model.
> * Create and/or analyze functions using multiple representations (graph, table, and equation).
> * Create new functions from existing functions (transformations and/or inverses of functions).

Big Idea #2: Mathematical relationships among numbers can be represented, compared, and communicated.

> **Essential Questions:**
> * How is mathematics used to quantify, compare, represent, and model numbers?

Concepts:
- Complex Number System

Competencies:
- Represent and/or use imaginary numbers in equivalent forms.
- Simplify/evaluate expressions involving imaginary numbers.
- Perform arithmetic operations and apply to complex numbers.

Overview: Relations and Functions, Quadratic Equations and Functions, Introduction to Polynomials

Goals: Students will be able to determine if a relation is a function either algebraically or graphically. Students will be able to describe and graph the transformation of a function. Students will be able to graph quadratic functions, identifying properties of the graph, and solve quadratic equations using various algebraic methods. Students will be able to connect the graph of a quadratic function with its solutions. Students will also perform operations on polynomials.

Objectives:
1. Students will be able to determine whether a relation is a function, find the domain, range, and use function notation. (DOK – Level One)
2. Students will be able to analyze the graph of a linear or absolute value function (including piece-wise), identifying domain, range, degree. (DOK – Level Four)
3. Students will be able to describe and graph the transformation of a function. (DOK- Level Two)
4. Students will be able to locate and identify the x and y intercepts of a function and to recognize the x-intercepts as the zeros of the function i.e. the roots of the equations. (DOK – Level One)
5. Students will be able to identify quadratic functions and graphs, including the properties of a parabola such as the maximum or minimum values. (DOK – Level Two)
6. Students will be able to graph quadratic functions from standard form or vertex form. (DOK – Level Two)
7. Students will be able to solve a quadratic equation by graphing (identifying the x-intercepts), factoring, completing the square, or using the quadratic formula. (DOK – Level Three)
8. Students will be able to apply their understanding of quadratic functions to solve real world applications. (DOK – Level Four)
9. Students will be able to simplify, add, subtract and multiply complex numbers. (DOK – Level Two)

10. Students will be able to classify polynomials and determine their degree. (DOK– Level One)

11. Students will be able to add, subtract, multiply and divide (long division and synthetic division) polynomials. (DOK – Level Two)

Core Activities and Corresponding Instructional Methods:

1. Build math language/vocabulary including *relation, function, domain, range.*
   a. Teachers will use appropriate language to identify algebraic terms and processes.
   b. During class discussions and investigations, teachers will encourage and guide students to use appropriate math terminology.
   c. Writing activities incorporating appropriate math language

2. Build students' ability to analyze graphs of functions, specifically by identifying significant points on the graph and through transformation of the function.
   a. Direct instruction using Smart Technology and online textbook and resources.
   b. Guided practice using the TI-84 graphing calculator, Desmos, Geometer's Sketchpad
   c. Cooperative learning groups

3. Expose students' prior knowledge of functions and graphing in the coordinate plane, guiding students to graph quadratic functions. Investigate the properties of quadratic functions.
   a. Diagnostic assessment, questioning
   b. Direct instruction as needed using Smart Technology and online textbook and resources, Venn Diagrams
   c. Guided practice
   d. Cooperative learning groups

4. Build math language/vocabulary (vertex, axis of symmetry, degree, zeros/roots, etc.).
   a. Teachers will use appropriate language to identify algebraic terms and processes.
   b. During class discussions and investigations, teachers will encourage and guide
   c. Writing activities incorporating appropriate math language

5. Develop students' skills in solving quadratic functions by graphing, factoring, completing the square, and using the quadratic formula.
   a. Direct instruction using Smart Technology and online textbook and resources.

    b. Graphing activity using TI-Smartview, guiding students to find the appropriate window to view the graph and identifying properties of the graph

    c. Guided practice

    d. Cooperative learning groups

6. Develop students' ability to solve real world problems involving quadratic functions.

    a. Direct instruction using Smart Technology and online textbook and resources.

    b. Guided practice

    c. Cooperative learning groups

7. Expose students' prior knowledge of the real number system and introduce the complex number system. Guide students to perform operations with complex numbers.

    a. Diagnostic assessment, questioning

    b. Cooperative learning groups

    c. Direct instruction as needed using Smart Technology and online textbook and resources

    d. Guided practice

8. Expose students' prior knowledge of polynomials (Algebra 1 content). Develop students' skills in adding, subtracting, multiplying and dividing polynomials.

    a. Direct instruction using Smart Technology and online textbook and resources.

    b. Guided practice

    c. Cooperative learning groups

Assessments:

Diagnostic:
Glencoe Algebra 2 Support File
Teacher prepared pre-test/diagnostic test
Teacher questioning and observation
Keystone Algebra I exam

Formative:
Teacher observations, questions, discussions
Homework
Teacher prepared assessments (quizzes and chapter tests)

Summative:
Common Assessment for Unit 2

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Unit 3: Polynomial Functions, Inverses and Radical Functions,   **Marking Period:** 3
Exponential and Logarithmic Functions

Standard(s):
PACCS Math: CC2.1.HS.C.1, CC2.1.HS.C.4, CC2.2.HS.C.5, CC2.1.HS.C.6, CC2.2.HS.D.3, CC2.2.HS.D.4, CC2.2.HS.D.5, CC2.1.HS.D.3 CC2.1.HS.D.5, CC2.1.HS.D.10, CC2.1.HS.F.1, CC2.1.HS.F.2, CC2.1.HS.F.4, CC2.1.HS.F.7
http://static.pdesas.org/content/documents/PA%20Core%20Standards%20Mathematics%20PreK-12%20March%202014.pdf

Anchor(s): A2.1.2.1.1, A2.1.2.1.2, A2.1.2.1.3, A2.1.2.1.4, A2.1.2.2.1, A2.1.3.1.2, A2.1.3.1.3, A2.1.3.1.4, A2.2.1.1.4, A2.2.2.1.1, A2.2.2.1.2, A2.2.2.1.3, A2.2.2.1.4
http://www.education.pa.gov/Documents/K-12/Assessment%20and%20Accountability/Keystone%20Exams/Keystone%20Exams%20AA-EC%20woSample%20Items/Keystone%20Content%20Module%20Standard%20Blueprint--Algebra%20II.pdf

Big Idea #1: Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.

   Essential Questions:
   - How are relationships represented mathematically?
   Concepts:
   - Polynomial and Rational Expressions
   Competencies:
   - Perform arithmetic operations on polynomials.
   - Understand the relationship between zeros and factors of polynomials.
   - Simplify/factor expressions involving polynomials.

Big Idea #2: Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.

   Essential Questions:
   - How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
   Concepts:
   - Equations and Inequalities
   Competencies:
   - Create and/or solve equations (including literal, polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically.

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Overview: Polynomial Functions, Inverses and Radical Functions, Exponential and Logarithmic Functions

Goals: Students will be able to connect the graph of a polynomial function with its solution. Students will be able to complete operations with radical expressions and rational exponents, solve equations involving radicals, rational exponents, exponential functions, and logarithmic functions.

Objectives:
1. Students will be able to solve a polynomial equation by factoring (using the sum or difference of cubes formula) or by graphing. (DOK – Level Two)
2. Students will be able to identify the real zeros of a polynomial function (graphing, using the factor theorem and/or remainder theorem). (DOK – Level Three)
3. Students will be able to construct a polynomial function with specified zeros. (DOK – Level Three)
4. Students will be able to complete function operations and find the composite of two functions. (DOK – Level Two)
5. Students will be able to simplify, add, subtract, multiply and divide radical expressions, including rationalizing the denominators. (DOK – Level Two)
6. Students will be able to simplify expressions with rational exponents. (DOK – Level Two)
7. Students will be able to solve equations involving radicals or rational exponents. (DOK – Level Three)
8. Students will be able to find the inverse of a relation or function. (DOK – Level Three)
9. Students will be able to model exponential growth or decay and make predictions based on the model. (DOK – Level Four)
10. Students will be able to graph exponential and logarithmic functions. (DOK – Level Two)
11. Students will be able to write and evaluate logarithmic expressions. (DOK – Level Two)
12. Students will be able to use the properties of logarithms. (DOK – Level Two)
13. Students will be able to solve exponential and logarithmic equations. (DOK – Level Three)
14. Students will be able to evaluate natural logarithmic expressions and solve equations using natural logarithms. (DOK – Level Two, DOK – Level Three)

Core Activities and Corresponding Instructional Methods:
1. Develop students' skills in solving polynomials by graphing or factoring.
    a. Direct instruction using Smart Technology and online textbook and resources.
    b. Guided practice

    c. Cooperative learning groups

2. Develop students' ability to solve real world problems by applying their understanding of polynomials and its zeros.
    a. Guided practice
    b. Cooperative learning groups

3. Expose students' prior knowledge of functions and notation, guiding students to add, subtract, multiply and divide functions as well as find the composite of two functions.
    a. Questioning
    b. Direct instruction as needed using Smart Technology and online textbook and resources
    c. Guided practice
    d. Cooperative learning groups

4. Expose students' prior knowledge of radicals and properties of exponents, guiding students to make a connection between them.
    a. Diagnostic assessment, questioning
    b. Direct instruction as needed using Smart Technology and online textbook and resources
    c. Guided practice
    d. Cooperative learning groups

5. Build math language/vocabulary (index, rationalizing the denominator, etc.)
    a. Teachers will use appropriate language to identify algebraic terms and processes.
    b. During class discussions and investigations, teachers will encourage and guide students to use appropriate math terminology.
    c. Writing activities incorporating appropriate math language

6. Develop students' skills in adding, subtracting, multiplying and dividing radical expressions and expressions with rational exponents as well as solving radical equations.
    a. Direct instruction using Smart Technology and online textbook and resources.
    b. Guided practice
    c. Cooperative learning groups

7. Develop students' skills in evaluating logarithmic expressions using properties of logarithms as well as solving exponential and logarithmic equations.
   a. Direct instruction using Smart Technology and online textbook and resources.
   b. Guided practice
   c. Cooperative learning groups

8. Develop students' ability to solve real world problems, specifically problems involving exponential growth or decay.
   a. Guided practice
   b. Cooperative learning groups

Assessments:

Diagnostic:
Glencoe Algebra 2 Support File
Teacher prepared pre-test/diagnostic test
Teacher questioning and observation
Keystone Algebra I exam

Formative:
Teacher observations, questions, discussions
Homework
Teacher prepared assessments (quizzes and chapter tests)

Summative:
Common Assessment for Unit 3

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Unit 4: **Rational Functions and Trigonometric Functions**   **Marking Period: 4**

Standard(s):
PACS Math: CC2.1.HS.D.6, CC.2.2.HS.C.7, CC.2.2.HS.C.8
http://static.pdesas.org/content/documents/PA%20Core%20Standards%20Mathematics%20PreK-12%20March%202014.pdf

Anchor(s): A2.1.2.2.2
http://www.education.pa.gov/Documents/K-12/Assessment%20and%20Accountability/Keystone%20Exams/Keystone%20Exams%20AA-EC%20woSample%20Items/Keystone%20Content%20Module%20Standard%20Blueprint--Algebra%20II.pdf

Big Idea #1: Mathematical relationships among numbers can be represented, compared, and communicated.

 Essential Questions:
  • How are relationships represented mathematically?

 Concepts:
  • Polynomial and Rational Expressions

 Competencies:
  • Rewrite rational expressions.

Big Idea #2: Patterns exhibit relationships that can be extended, described, and generalized.

 Essential Questions:
  • How can patterns be used to describe relationships in mathematical situations?

 Concepts:
  • Trigonometry

 Competencies:
  • Define and/or apply trigonometric ratios.

Overview: Rational Functions and Trigonometric Functions

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Goals: Students will be able to complete operations with rational functions and solve rational equations. Students will be able to convert from degree measure to radian measure of an angle and determine the coordinates of special angles on the unit circle.

Objectives:
1. Students will be able to simplify, multiply, divide, add and subtract rational expressions. (DOK – Level Two)
2. Students will be able to simplify complex fractions. (DOK – Level Two)
3. Students will be able to solve rational equations. (DOK – Level Three)
4. Students will be able to identify cycles, periods and amplitude of periodic functions. (DOK – Level Two)
5. Students will be able to work with angles in standard position. (DOK – Level Two)
6. Students will be able to find coordinates of points on the unit circle. (DOK – Level Two)
7. Students will be able to convert between degree measure and radian measure of an angle. (DOK – Level One)

Core Activities and Corresponding Instructional Methods:

1. Expose students' prior knowledge of rational numbers, guiding students to add, subtract, multiply and divide rational expressions.
   a. Questioning
   b. Direct instruction as needed using Smart Technology and online textbook and resources
   c. Guided practice
   d. Cooperative learning groups

2. Develop students' skills in solving rational equations.
   a. Direct instruction using Smart Technology and online textbook and resources.
   b. Guided practice
   c. Cooperative learning groups

3. Build math language/vocabulary including *amplitude, period, cycle, radian.*
   a. Teachers will use appropriate language to identify algebraic terms and processes.
   b. During class discussions and investigations, teachers will encourage and guide students to use appropriate math terminology.
   c. Writing activities incorporating appropriate math language

4. Develop students' skills in converting between degrees and radians. Guide students to find the exact value of the coordinates for specified angles on the unit circle.
   a. Direct instruction using Smart Technology and online textbook and resources.
   b. Guided practice
   c. Cooperative learning groups

5. Develop students' ability to find trigonometric values for specific angle measures, using the unit circle.
   a. Guided practice
   b. Cooperative learning groups

Assessments:

Diagnostic:

Glencoe Algebra 2 Support File

Teacher prepared pre-test/diagnostic test

Teacher questioning and observation

Keystone Algebra I exam

Formative:

Teacher observations, questions, discussions

Homework

Teacher prepared assessments (quizzes and chapter tests)

Summative:

Common Assessment for Unit 4

Extensions:

Worksheets prepared from Kuta Software and online resources

Glencoe enrichment worksheets

SAT question bank from Collegeboard and Khan Academy

Correctives:

Glencoe Resources: Study Guide, Intervention and Study Notebook

Remediation practice worksheets prepared from Kuta software and online resources

More extensive direct instruction

Materials and Resources:

Glencoe Algebra 2

Glencoe teacher/student resources

Prentice Hall Algebra 2

Kuta Software and Teacher Generated Worksheets

Graphing Calculator

TI Smart View Software

Teacher developed SAT question bank

Websites such as those from Collegeboard and Khan Academy

Geometer's Sketchpad

Smart Notebook Gallery Essentials

Primary Textbook(s) Used for this Course of Instruction

Name of Textbook: Glencoe Algebra 2

Textbook ISBN #: 978-0-07-903990-3

Textbook Publisher & Year of Publication: McGraw-Hill Education, 2018

Curriculum Textbook is utilized in (title of course): Algebra 2 & Trigonometry

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Checklist to Complete and Submit:

(Scan and email)

_____ Copy of the curriculum using the template entitled "Planned Instruction," available on the district website.

_____ The primary textbook form(s).

_____ The appropriate payment form, in compliance with the maximum curriculum writing hours noted on the first page of this document.

Each principal and/or department chair has a schedule of First and Second Readers/Reviewers. Each Reader/Reviewer must sign & date below.

First Reader/Reviewer Printed Name_____

First Reader/Reviewer Signature_____ Date_____

Second Reader/Reviewer Printed Name_____

Second Reader/Reviewer Signature _____ Date_____