

**SACRAMENTO CITY UNIFIED SCHOOL DISTRICT
BOARD OF EDUCATION**

Agenda Item 9.1e

Meeting Date: August 18, 2016

Subject: Approve Course of Study for Integrated Math 3; MIS301, MIS302, ZIS331, ZIS332

- Information Item Only
- Approval on Consent Agenda
- Conference (for discussion only)
- Conference/First Reading (Action Anticipated: _____)
- Conference/Action
- Action
- Public Hearing

Division: Curriculum and Instruction

COURSE OF STUDY

FOR

Integrated Math 3

Course Codes:

INTEGRATED MATH 3 1P / MIS301

INTEGRATED MATH 3 2P / MIS302

- Build a function that models a relationship between two quantities (F-BF.1b)
- Build new functions from existing functions (F-BF.3,4a)
- Linear, Quadratic, and Exponential Models
 - Construct and compare linear, quadratic, and exponential models and solve problems (F-LE.4,4.1(CA),4.2(CA),4.3(CA))
- Trigonometric Functions
 - Extend the domain of trigonometric functions using the unit circle (F-TF.1,2,2.1(CA))
 - Model periodic phenomena with trigonometric functions (F-TF.5)
- Geometry**
 - Similarity, Right Triangles, and Trigonometry
 - Apply trigonometry to general triangles (G-SRT.9+,10+,11+)
 - Expressing Geometric Properties with Equations
 - Translate between the geometric description and the equations for a conic section (G-GPE.3.1(CA))
 - Geometric Measurement and Dimension
 - Visualize relationships between two-dimensional and three-dimensional objects (G-GMD.4)
 - Modeling with Geometry
 - Apply geometric concepts in modeling situations (G-MG.1,2,3)
- Statistics and Probability**
 - Interpreting Categorical and Quantitative Data
 - Summarize, represent, and interpret data on a single count or measurement variable (S-ID.4)
 - Making Inferences and Justifying Conclusions
 - Understand and evaluate random processes underlying statistical experiments (S-IC.1,2)
 - Make inferences and justify conclusions from sample surveys, experiments, and observational studies (S-IC.3,4,5,6)
 - Using Probability to Make Decisions
 - Use probability to evaluate outcomes of decisions (S-MD.6+,7+)

To read the descriptions of the Standards for Mathematical Practice and to read the specific Math 3 Content Standards, see the [CA Framework for Math 3](#).

INSTRUCTIONAL MATERIALS

Textbook: CCSS IP Mathematics III by Walch Education (Publisher) 2015 www.walch.com

SUPPLEMENTARY MATERIALS:

TEACHER RESOURCES

<http://www.corestandards.org/>

www.walchconnect.com

www.scusd-math.wikispaces.com/Math3

www.learnzillion.com

www.illustrativemathematics.org

www.map.mathshell.org

<https://www.engageny.org/>

SECTION TWO — COURSE UNITS

or Customized online assessment on Unit 2A standards
from <https://scusd.illuminateed.com>

UNIT 2B: Rational and Radical Relationships

In Unit 2B, students perform operations with rational expressions, and solve both rational and radical equations. Students explore rational expressions as a system similar to rational numbers, and find sums, differences, products, and quotients. Students will identify rational expressions that represent real world situations, and they will use rational expressions to make sense of and solve real-world problems.

Standards Addressed

CCSS-M Standards in Unit 2B: A-SSE.1–2; A-REI.1,2,11; A-APR.6,7

Instructional Objectives

Students will be able to:

Add, subtract, multiply, and divide rational expressions

Solve rational and radical equations, in mathematical and real-world context

Suggested Activities

In the following assignment, "[Snow Removal](#)", students will create a rational equation from a real-world scenario regarding the amount of time it takes for two people to complete a snow removal job (compared to each individual working alone). Students will solve the equation by hand or using technology, and interpret their results in terms of the context.

Suggested Assessment:

Formative Assessment Strategies

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UNIT 3: Trigonometry of General Triangles and Trigonometric Functions

In Unit 3, students will explore graphs of trigonometric functions in connection to the unit circle. They will understand radian measure and explain the connection between the unit circle and graphing trig functions on a coordinate plane. Students will prove non-right triangle trig laws (Law of Sines and Law of

Customized online assessment on Unit 3 standards
from <https://scusd.illuminateed.com>

UNIT 4A: Mathematical Modeling of Inverse, Logarithmic, and Trigonometric Functions

Unit 4A focuses on creating models using logarithmic and trigonometric functions. Students will understand the key features of inverse, log and trig graphs, with the understanding of logarithms coming from the exploration of the inverse of exponential functions. Students will comfortably manipulate logarithmic expressions and equations in order to solve real world situations. They will graph exponential and logarithmic functions showing intercepts and end behavior, and graph trigonometric functions showing period, amplitude, and midline.

Standards Addressed

CCSS-M Standards in Unit 4A: F-BF.4a; F-LE.4; F-IF.4-8

Instructional Objectives

Students will be able to:

- Determine inverses of quadratic functions and other functions, and use them to solve problems

- Model logarithmic functions as inverses (including natural logarithms)

- Graph logarithmic functions in a mathematical and real-world context, and interpret the graph in terms of a situation that it models

- Graph trigonometric functions to model a situation

Suggested Activities

In the following assignment, "[When Will it Beep?](#)", students will apply their understanding of inverses in order to solve a problem about when a smoke detector will stop beeping. Students will use the given half-life equation in order to write an inverse logarithmic equation, and calculate the amount of time it would take for the smoke detector to stop beeping. Students will make predictions and draw conclusions about the scenario.

Suggested Assessment:

Formative Assessment Strategies

- Use informal formative assessment strategies on a daily basis, for example, in the form of exit tickets, individual whiteboards, and/or student engagement in small group and whole group discussions

- Use appropriate problems from the textbook lessons (including the Problem-Based Task) in class and for homework

- Use links to the online tasks and other resources from our district curriculum map to assess students during the unit

Summative Assessment Strategies

Use appropriate problems from the textbook lessons (including the Problem-Based Task) in class and for homework

Use links to the online tasks and other resources from our district curriculum map to assess students during the unit

Summative Assessment Strategies

Unit 4B Assessment from Walch Textbook; **or**

Online CCSS IP Math 3 Unit 4B Assessment from www.walchconnect.com;

or

Customized online assessment on Unit 4B standards from <https://scusd.illuminateed.com>