Model Integrated Pathway: Model Mathematics II Overview [MII]

Number and Quantity

The Real Number System

A. Extend the properties of exponents to rational exponents.

B. Use properties of rational and irrational numbers.

Quantities

A. Reason quantitatively and use units to solve problems.

The Complex Number Systems

A. Perform arithmetic operations with complex numbers.

C. Use complex numbers in polynomial identities and equations.

Algebra

Seeing Structure in Expressions

A. Interpret the structure of quadratic and exponential expressions.

B. Write quadratic and exponential expressions in equivalent forms to solve problems.

Arithmetic with Polynomials and Rational Expressions

A. Perform arithmetic operations on polynomials.

Creating Equations

A. Create equations that describe numbers or relationships.

Reasoning with Equations and Inequalities

B. Solve equations and inequalities in one variable.

C. Solve systems of equations.

> ***Standards for Mathematical Practice***
>
> 1. Make sense of problems and persevere in solving them.
> 2. Reason abstractly and quantitatively.
> 3. Construct viable arguments and critique the reasoning of others.
> 4. Model with mathematics.
> 5. Use appropriate tools strategically.
> 6. Attend to precision.
> 7. Look for and make use of structure.
> 8. Look for and express regularity in repeated reasoning.

Functions

Interpreting Functions

B. Interpret quadratic and exponential functions with integer exponents that arise in applications in terms of the context.

C. Analyze functions using different representations.

Building Functions

A. Build a function that models a relationship between two quantities.

B. Build new functions from existing functions.

Linear, Quadratic, and Exponential Models

A. Construct and compare linear, quadratic and exponential models and solve problems.

Geometry

Congruence

C. Prove geometric theorems, and when appropriate, the converse of theorems.

Similarity, Right Triangles, and Trigonometry

A. Understand similarity in terms of similarity transformations.

B. Prove theorems involving similarity using a variety of ways of writing proofs, showing validity of underlying reasoning.

C. Define trigonometric ratios and solve problems involving right triangles.

Circles
   A. Understand and apply theorems about circles.
   B. Find arc lengths and areas of sectors of circles.

Expressing Geometric Properties with Equations
   A. Translate between the geometric description and the equation for a conic section.
   B. Use coordinates to prove simple geometric theorems algebraically.

Geometric Measurement and Dimension
   A. Explain volume formulas and use them to solve problems.

Statistics and Probability

Conditional Probability and the Rules of Probability
   A. Understand independence and conditional probability and use them to interpret data from simulations or experiments.
   B. Use the rules of probability to compute probabilities of compound events in a uniform probability model.