Rhode Island Interim Assessments (RIIA)

Test Specifications for Fixed-Form Interim Mathematics Assessments

February 2014

Introduction

The purpose of this document is to describe the design and specifications for the *Rhode Island Fixed-Form Interim Mathematics Assessments*. The objective of these assessments is to provide an indication of a student's proficiency on selected critical content from the Common Core State Standards for Mathematics (CCSS-M). Generally, the standards that have been selected are representative of those marked as "major" in the PARCC Model Content Frameworks. It should be noted that due to such factors as student testing time, it is not feasible to assess all of the clusters and standards of the CCSS. ***The content presented here is not intended to indicate the only content that should be taught and assessed throughout the year***.

Test Design

The fixed-form interim assessments will be administered three times per year. The tentative administration schedule is provided below.

- Fall: November
- Winter: February
- Spring: April

The fixed-form interim assessments are sectioned into two sessions; each session is designed to be administered in a period of 30-45 minutes; however, both sessions could be administered during a class period for schools with block scheduling. In general, each session should take most students about thirty minutes to complete, but students should be given as much time as necessary. Each session will consist of a mixture of multiple-choice items, short-answer items, and constructed-response items.

Grade Level and Course Assessment Expectations

The tables that follow present the specifications for each assessment by grade level or content area.

Grade 3

This table identifies the clusters to be assessed on each fixed-form interim assessment.

- Please note that the major cluster, *Multiply and Divide within 100,* is not assessed on the RIIA Fixed Form.

Table A: Grade 3 Specifications

Grade 3 Clusters
Represent and solve problems involving multiplication and division
Understand properties of multiplication and the relationship between multiplication and division
Solve problems involving the four operations, and identify and explain patterns in arithmetic
Develop understanding of fractions as numbers
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects
Geometric measurement: understand concepts of area and relate area to multiplication and to addition

Grade 4

This table identifies the clusters to be assessed on each fixed-form interim assessment.

Table B: Grade 4 Specifications

Grade 4 Clusters
Use the four operations with whole numbers to solve problems
Generalize place value understanding for multi-digit whole numbers
Use place value understanding and properties of operations to perform multi-digit arithmetic
Extend understanding of fraction equivalence and ordering
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers
Understand decimal notation for fractions, and compare decimal fractions

Grade 5

This table identifies the clusters to be assessed on each fixed-form interim assessment.

Table C: Grade 5 Specifications

Grade 5 Clusters
Understand the place value system
Perform operations with multi-digit whole numbers and with decimals to hundredths
Use equivalent fractions as a strategy to add and subtract fractions
Apply and extend previous understandings of multiplication and division to multiply and divide fractions
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition

Grade 6

This table identifies the clusters to be assessed on each fixed-form interim assessment.

Table D: Grade 6 Specifications

Grade 6 Clusters
Understand ratio concepts and use ratio reasoning to solve problems
Apply and extend previous understandings of multiplication and division to divide fractions by fractions
Apply and extend previous understandings of numbers to the system of rational numbers
Apply and extend previous understandings of arithmetic to algebraic expressions
Reason about and solve one-variable equations and inequalities
Represent and analyze quantitative relationships between dependent and independent variables

Grade 7

This table identifies the clusters to be assessed on each fixed-form interim assessment.

- Please note that the supporting cluster, *Solve real-life and mathematical problems involving angle measure, area, surface area, and volume*, is assessed on the RIIA Fixed Forms.

Table E: Grade 7 Specifications

Grade 7 Clusters
Analyze proportional relationships and use them to solve real-world and mathematical problems
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers
Use properties of operations to generate equivalent expressions
Solve real-life and mathematical problems using numerical and algebraic expressions and equations
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume

Grade 8

This table identifies the clusters to be assessed on each fixed-form interim assessment.

- Please note that the major cluster, *Use functions to model relationships between quantities*, is not assessed on the RIIA Fixed Forms.

Table F: Grade 8 Specifications

Grade 8 Clusters
Work with radicals and integer exponents
Understand the connections between proportional relationships, lines, and linear equations
Analyze and solve linear equations and pairs of simultaneous linear equations
Define, evaluate, and compare functions
Understand congruence and similarity using physical models, transparencies, or geometry software
Understand and apply the Pythagorean Theorem

Algebra 1

This table identifies the clusters to be assessed on each fixed-form interim assessment.

- Please note that major clusters, *Interpret the structure of expressions* and *Interpret linear models,* are not assessed on the Algebra I RIIA Fixed Forms.

Table G: Algebra 1 Specifications

Algebra 1 Clusters	Contributing Standards
Perform arithmetic operations on polynomials	A-APR.1
Create equations that describe numbers or relationships	A-CED.1 - 4
Understand solving equations as a process of reasoning and explain the reasoning	A-REI.1
Solve equations and inequalities in one variable.	A-REI.3 - 4
Represent and solve equations and inequalities graphically	A-REI.10 - 12
Understand the concept of a function and use function notation	F-IF.1 - 3
Interpret functions that arise in applications in terms of the context	F-IF.4 - 6

Geometry

This table identifies the clusters to be assessed on each fixed-form interim assessment.

- Please note that the supporting cluster, *Experiment with transformations in the plane,* and the additional cluster, *Understand and apply theorems about circles,* are assessed on the Geometry RIIA Fixed Forms.

Table H: Geometry Specifications

Geometry Clusters	Contributing Standards
Experiment with transformations in the plane	G-CO.1 - 5
Understand congruence in terms of rigid motions	G-CO.6 - 8
Prove geometric theorems	G-CO.9 - 11
Understand similarity in terms of similarity transformations	G-SRT.1 - 3
Prove theorems involving similarity	G-SRT.4 - 5
Define trigonometric rations and solve problems involving right triangles	G-SRT.6 - 8
Understand and apply theorems about circles	G-C.1 - 3
Use coordinates to prove simple geometric theorems algebraically	G-GPE.4 - 7
Apply geometric concepts in modeling situations	G-MG.1 - 3

Algebra 2

This table identifies the clusters to be assessed on each fixed-form interim assessment.

- Please note that the supporting clusters, *Create equations that describe numbers or relationships; Construct and compare linear, quadratic, and exponential models and solve problems; Summarize, represent, and interpret data on two categorical and quantitative variables,* are assessed on the Algebra 2 RIIA Fixed Forms.

Table I: Algebra 2 Specifications

Algebra 2 Clusters	**Contributing Standards**
Extend the properties of exponents to rational exponents	N-RN.1 - 2
Interpret the structure of expressions	A-SSE.2
Write expressions in equivalent forms to solve problems	A-SSE.3 - 4
Understand the relationships between zeros and factors of polynomials	A-APR.2 - 3
Create equations that describe numbers or relationships	A-CED.1
Understand solving equations as a process of reasoning and explain the reasoning	A-REI.1 - 2
Represent and solve equations and inequalities graphically	A-REI.11
Interpret functions that arise in applications in terms of context	F-IF.4 & 6
Build a function that models a relationship between two quantities	F-BF.1 – 2
Construct and compare linear, quadratic, and exponential models and solve problems	F-LE.2 & 4

Summarize, represent, and interpret data on two categorical and quantitative variables	S-ID.6
Make inferences and justify conclusions from sample surveys, experiments, and observational studies	S-IC.3 & 4