2014–2015 NC Final Exams of Algebra II, Geometry, and Integrated Math III

North Carolina Assessment Specifications

Purpose of the Assessments

☐ NC Final Exams were developed to replace locally developed assessments, providing teachers and principals with a common measure for all students state-wide during a given testing window.

☐ The NC Final Exams for Algebra II, Geometry, and Integrated Math III will measure students' academic progress in the NC *Standard Course of Study*, adopted by the North Carolina State Board of Education in June 2010. The NC *Standard Course of Study* for Mathematics is available at: http://www.corestandards.org/Math/.

☐ NC Final Exam scores (along with any other relevant end-of-course or end-of-grade assessment scores) will be used in the Educational Value-Added Assessment System (EVAAS) to produce student growth measures to satisfy Standards 6 and 8 of the North Carolina Educator Evaluation System. For more information on the North Carolina Educator Evaluation System, go to: http://www.ncpublicschools.org/effectiveness-model/.

☐ NC State Board of Education policy GCS-A-016 directs schools to use the results from all course-specific NC Final Exams as a minimum of 20% of the student's final course grade.

☐ NC Final Exams will not be used for school and district accountability under the READY Accountability Model or for Federal reporting purposes.

Developing Assessments

North Carolina educators were recruited and trained to write new items for the NC Final Exams. The diversity among the item writers and their knowledge of the current standards was addressed during recruitment. Trained North Carolina educators also reviewed items and suggested improvements, if necessary. The use of North Carolina educators to develop and review items strengthens the instructional validity of the items.

Curriculum and Assessment Cycle

☐ June 2010: North Carolina State Board of Education adoption of the NC *Standard Course of Study*.

☐ 2012–2013: Operational administration of the Measures of Student Learning: Common Exams.

☐ 2013–14: Redesign and subsequent first operational administration of the NC Final Exams.

☐ 2014–15: Second operational administration of the NC Final Exams. The 2014–15 school year will be the last year the NC Final Exams of Algebra II, Geometry, and Integrated Math III will be available.

Prioritization of Standards

☐Members of the Test Development section of the North Carolina Department of Public Instruction (NCDPI) invited teachers to collaborate and develop recommendations for a prioritization of the standards indicating the relative importance of each standard, the anticipated instructional time, and the appropriateness of the standard for multiple-choice items.

☐Tables 1 through 3 describe the percentage range of score points associated with each content category that will appear on the NC Final Exams forms. The table of content category weights describe the percent of total score points, rather than the percent of total items.

Table 1. Test Specification Weights for the Geometry NC Final Exam

High School Category	Standard	Percent of Total Score Points
Number and Quantity (HSN)	Number and Quantity: Quantities (Q)	4% to 7%
Geometry (HSG)	Congruence (CO)	75% to 80%
	Similarity, Right Triangles, & Trigonometry (SRT)	
	Circles (C)	
	Expressing Geometric Properties with Equations (GPE)	
	Geometric Measurement & Dimension (GMD)	
	Modeling with Geometry (MG)	
Statistics & Probability (HSS)	Conditional Probability & the Rules of Probability (CP)	15% to 20%
	Total Score Points	100%

Table 2. Test Specification Weights for the Algebra II NC Final Exam

High School Category	Standard	Percent of Total Score Points
Number and Quantity (HSN)	The Real Number System (RN)	10% to 15%
	The Complex Number System (CN)	
Algebra (HSA)	Seeing Structure in Expressions (SSE)	43% to 47%
	Arithmetic with Polynomials & Rational Expressions (APR)	
	Creating Equations (CED)	
	Reasoning with Equations & Inequalities (REI)	
Functions (HSF)	Interpreting Functions (IF)	30% to 35%
	Building Functions (BF)	
	Linear, Quadratic, & Exponential Models (LE)	
	Trigonometric Functions (TF)	
Statistics & Probability (HSS)	Interpreting Categorical & Quantitative Data (ID)	9% to 13%
	Making Inferences & Justifying Conclusions (IC)	
	Total Score Points	100%

Table 3. Test Specification Weights for the Integrated Math III NC Final Exam

High School Category	Standard	Percent of Total Score Points
Algebra (HSA)	Seeing Structure in Expressions (SSE)	33% to 36%
	Arithmetic with Polynomials & Rational Expressions (APR)	
	Creating Equations (CED)	
	Reasoning with Equations & Inequalities (REI)	
Functions (HSF)	Interpreting Functions (IF)	38% to 41%
	Building Functions (BF)	
	Linear, Quadratic, & Exponential Models (LE)	
	Trigonometric Functions (TF)	
Geometry (HSG)	Geometric Measurement & Dimension (GMD)	8% to 12%
	Modeling with Geometry (MG)	
Statistics & Probability (HSS)	Interpreting Categorical & Quantitative Data (ID)	13% to 17%
	Making Inferences & Justifying Conclusions (IC)	
	Using Probability to Make Decisions (MD)	
	Total Score Points	100%

Cognitive Rigor
☐ Each standard was classified using Webb's depth of knowledge (DOK) classification scheme.

Types of Items and Supplemental Materials
☐ The NC Final Exams will contain four-response-option multiple-choice items.

☐ Students must be provided a graphing calculator.

☐ Students taking math NC Final Exams will be provided with graph paper.

☐ A complete list of the supplemental test materials (i.e., *2014-2015 NC Final Exams Materials List*) may be reviewed at http://www.ncpublicschools.org/accountability/common-exams/.

☐ Released forms, any necessary formula/reference sheets, and graph paper (if applicable) are available at http://www.ncpublicschools.org/accountability/common-exams/released-forms/. These NC Final Exams will not have *Fall 2014* released items because test development was discontinued. Released forms may be used by school systems to help acquaint students with items. These materials must not be used for personal or financial gain.

Testing Structure and Test Administration Time
☐ The NC Final Exams of Algebra II, Geometry, and Integrated Math III contain 30 items.

☐ Students will be given 120 minutes to answer all items. Students should monitor the clock to ensure they allow themselves adequate time to respond to all items.

☐ Appendices A–C show the number of operational items for each standard for the 2014–2015 tests.

Test Cycle and Delivery Mode

☐The NC Final Exams are administered to students enrolled in fall and spring courses. A list of course codes that align with the 2014–2015 NC Final Exams (i.e., *Course Codes that Align with the NC Final Exams*) is available at http://www.ncpublicschools.org/accountability/common-exams/.

☐ The NC Final Exams are available for paper-and-pencil mode. However, transition to online administrations is proceeding during the 2014–2015 academic year.

NC Final Exam	Fall 2014 Delivery Mode Option(s)	Spring 2015 Delivery Mode Options
Geometry	Paper-and-Pencil only	Paper-and-Pencil and Online via NCTest
Algebra II	Paper-and-Pencil only	Paper-and-Pencil and Online via NCTest
Integrated Math III	Paper-and-Pencil only	Paper-and-Pencil and Online via NCTest

Appendix A
Geometry NC Final Exam 2014–15
Number of Items by Standard

The following table shows the number of operational items for each standard. Some standards not designated with tested items (i.e., "–") may be a prerequisite standard or may be tested within the context of another standard. The standards may be reviewed at http://www.corestandards.org/Math/.

Geometry Standard (High School)	Number of Items Per Standard*
Number and Quantity: Quantities HSN.Q.A.1	1
HSN.Q.A.2	–
HSN.Q.A.3	1
Geometry: Congruence HSG.CO.A.1	1
HSG.CO.A.2	1
HSG.CO.A.3	1
HSG.CO.A.4	–
HSG.CO.A.5	1
HSG.CO.B.6	–
HSG.CO.B.7	–
HSG.CO.B.8	1
HSG.CO.C.9	–
HSG.CO.C.10	–
HSG.CO.C.11	–
HSG.CO.D.12	–
HSG.CO.D.13	–
Geometry: Similarity, Right Triangles, & Trigonometry HSG.SRT.A.1	–
HSG.SRT.A.2	–
HSG.SRT.A.3	–
HSG.SRT.B.4	1
HSG.SRT.B.5	1
HSG.SRT.C.6	1
HSG.SRT.C.7	1
HSG.SRT.C.8	1
Geometry: Circles HSG.C.A.1	–
HSG.C.A.2	1
HSG.C.A.3	–
HSG.C.B.5	2

Geometry: Expressing Geometric Properties with Equations HSG.GPE.A.1	1
HSG.GPE.A.2	2
HSG.GPE.B.4	1
HSG.GPE.B.6	1
Geometry: Geometric Measurement & Dimension HSG.GMD.B.4	2
Geometry: Modeling with Geometry HSG.MG.A.1	2
HSG.MG.A.2	1
HSG.MG.A.3	–
Statistics & Probability: Conditional Probability & the Rules of Probability HSS.CP.A.1	1
HSS.CP.A.2	1
HSS.CP.A.3	–
HSS.CP.A.4	1
HSS.CP.A.5	–
HSS.CP.B.6	1
HSS.CP.B.7	1

* Some standards not designated with tested items (i.e., "–") may be a prerequisite standard or may be tested within the context of another standard.

Appendix B
Algebra II NC Final Exam 2014–15
Number of Items by Standard

The following table shows the number of operational items for each standard. Some standards not designated with tested items (i.e., "–") may be a prerequisite standard or may be tested within the context of another standard. The standards may be reviewed at http://www.corestandards.org/Math/.

Algebra II Standard (High School)	Number of Items Per Standard*
Number and Quantity: The Real Number System HSN.RN.A.2	1
HSN.RN.B.3	1
Number and Quantity: Quantities HSN.Q	–
Number and Quantity: The Complex Number System HSN.CN.A.1	–
HSN.CN.A.2	1
HSN.CN.C.7	–
HSN.CN.C.9	1
Algebra: Seeing Structure in Expressions HSA.SSE.A.1	–
HSA.SSE.A.2	1
HSA.SSE.B.3	–
HSA.SSE.B.4	1
Algebra: Arithmetic with Polynomials & Rational Expressions HSA.APR.A.1	–
HSA.APR.B.2	2
HSA.APR.B.3	–
HSA.APR.C.4	–
HSA.APR.D.6	–
HSA.APR.D.7	1
Algebra: Creating Equations HSA.CED.A.1	1
HSA.CED.A.2	2
HSA.CED.A.3	–
HSA.CED.A.4	–
Algebra: Reasoning with Equations & Inequalities HSA.REI.A.1	–
HSA.REI.A.2	3
HSA.REI.B.4	–
HSA.REI.C.7	1
HSA.REI.D.10	–
HSA.REI.D.11	1

Functions: Interpreting Functions HSF.IF.A.2	–
HSF.IF.B.4	1
HSF.IF.B.5	1
HSF.IF.C.7	–
HSF.IF.C.8	1
HSF.IF.C.9	–
Functions: Building Functions HSF.BF.A.1	–
HSF.BF.A.2	–
HSF.BF.B.3	1
HSF.BF.B.4	1
Functions: Linear, Quadratic, & Exponential Models HSF.LE.A.3	1
HSF.LE.A.4	1
Functions: Trigonometric Functions HSF.TF.A.1	1
HSF.TF.A.2	–
HSF.TF.B.5	–
HSF.TF.C.8	1
Statistics & Probability: Interpreting Categorical & Quantitative Data HSS.ID.A.4	2
Statistics & Probability: Making Inferences & Justifying Conclusions HSS.IC.A.1	–
HSS.IC.A.2	1
HSS.IC.B.3	1
HSS.IC.B.4	–
HSS.IC.B.5	–
HSS.IC.B.6	–

∗ Some standards not designated with tested items (i.e., "–") may be a prerequisite standard or may be tested within the context of another standard.

Appendix C
Integrated Math III NC Final Exam 2014–15
Number of Items by Standard

The following table shows the number of operational items for each standard. Some standards not designated with tested items (i.e., "–") may be a prerequisite standard or may be tested within the context of another standard. The standards may be reviewed at http://www.corestandards.org/Math/.

Integrated Math III Standard (High School)	Number of Items Per Standard*
Algebra: Seeing Structure in Expressions HSA-SSE.A.1	–
HSA-SSE.A.2	1
HSA-SSE.B.4	1
Algebra: Arithmetic with Polynomials & Rational Expressions HSA-APR.A.1	–
HSA-APR.B.2	2
HSA-APR.B.3	–
HSA-APR.C.4	–
HSA-APR.D.6	1
HSA-APR.D.7	1
Algebra: Creating Equations HSA-CED.A.1	–
HSA-CED.A.2	–
HSA-CED.A.3	1
HSA-CED.A.4	1
Algebra: Reasoning with Equations & Inequalities HSA-REI.A.2	1
HSA-REI.D.11	1
Functions: Interpreting Functions HSF-IF.A.1	–
HSF-IF.A.2	–
HSF-IF.B.4	2
HSF-IF.B.5	1
HSF-IF.B.6	1
HSF-IF.C.7.B	–
HSF-IF.C.7.C	–
HSF-IF.C.7.E	–
HSF-IF.C.8.A	1
HSF-IF.C.9	–
Functions: Building Functions HSF-BF.A.1.B	–
HSF-BF.B.3	1
HSF-BF.B.4.A	1

Functions: Linear, Quadratic, & Exponential Models HSF-LE.4	2
Functions: Trigonometric Functions HSF-TF.A.1	2
HSF-TF.B.5	1
Geometry: Geometric Measurement & Dimension HSG-GMD.B.4	1
Geometry: Modeling with Geometry HSG-MG.A.1	2
HSG-MG.A.2	–
HSG-MG.A.3	–
Statistics & Probability: Interpreting Categorical & Quantitative Data HSS-ID.A.4	2
Statistics & Probability: Making Inferences & Justifying Conclusions HSS-IC.A.1	–
HSS-IC.A.2	1
HSS-IC.B.3	–
HSS-IC.B.4	1
HSS-IC.B.5	–
HSS-IC.B.6	–
Statistics & Probability: Using Probability to Make Decisions HSS-MD.B.7	1

* Some standards not designated with tested items (i.e., "–") may be a prerequisite standard or may be tested within the context of another standard.